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ABSTRACT

This document presents the proceedings of the technical writing section of the ninth annual (1974) Southeastern Regional Conference on English in the Two-Year College. It is divided into three parts: part 1 contains papers on the relevance of teaching writing and the demands of industry on the technical writer; part 2 contains three papers, each presenting a different approach to the teaching of technical writing; and part 3 consists of the reactions of three experts, David McLean, Roger Eason, and Fred MacIntosh, to the practicum descriptions made by the technical writing teachers in the previous sessions. (RB)

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HOW DO YOU TEACH TECHNICAL WRITING

edited by

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and

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Proceedings of the Technical Writing Section

Ninth Annual Southeastern Regional Conference

On English In The Two Year College

21-23 February, 1974

at

Jackson, Mississippi

CS 201 730

PREFACE

The purpose of this monograph is to publish the proceedings of the technical writing section of the ninth annual (1974) Southeastern Regional Conference on English in the Two Year College. The program was planned in direct response to the demands of 1973 conferees who felt that a program dealing with the practical aspects of teaching technical writing in the two year institution was long overdue.

Most conferees who taught technical writing were traditionally educated English majors who were unwillingly functioning in a position for which they fely unprepared. Therefore, they consistently asked "How do you teach technical writing?" This expression of their frustration became the title for the 1974 program.

In the early stages of planning, it occurred to us that if the problem which bothered our colleagues was as wide spread as it appeared to be, then only a few people would profit from a conference program. At this point we struck on the idea of this publication. The hope is that many more than those who were able to attend the Jackson meetings will profit from the program we presented there last February, and that as you read the material here presented, you will agree that teaching writing to technically oriented students is a dignified and relevant professional activity.

The monograph is divided into three parts. Part I contains two papers which constituted the first day's introductory session. Part II (the second day) contains the three major papers which deal directly with the program title. The final part, Part III, consists of the reactions of two noted educators in the field of technical writing and a professional technical writer to the practicum descriptions made by the technical writing teachers on the previous day's program. The final paper in Part III is the reaction of Ruth Fleming who served as recorder for the section and is co-editor of this monograph.

ACKNOWLEDGEMENTS

We wish to acknowledge the assistance of Mr. George M. Fouts, instructor of English at Western Piedmont Community College, for acting as a copy reader in the preparation of this monograph and Mrs. Lenada Williams, secretary of the English-Humanities Department at Western Piedmont Community College, who did much of the typing of the manuscripts for this publication after hours at her home.

We are, of course, grateful to Western Piedmont Community College, Morganton, North Carolina, which has provided technical support and professional encouragement to the English Department and to SCETC.

PART I

This part contains two papers which were presented at the introductory session on Thursday afternoon, February 21, 1974. The first paper, "Teaching Writing Is A Relevant Act," is of a mildly philosophical nature which was intended to set the tenor of the technical writing section. Mr. McGalliard, who chaired the section, presented his ideas as a way of opening the program and providing a brief defense of the discipline. The role of keynote speaker, however, rightfully belongs to Mr. David McLean of Martin-Marietta Aerospace, who delivered the second paper of the day.

Mr. McLean was invited to speak at the Conference because of two things: He has never taught in any sort of institution and he is employed by a large and respected company in the industrial community. Martin-Marietta's Presentation Department, in which Mr. McLean works, is one of the most respected in the aerospace industry.

TEACHING WRITING IS A RELEVANT ACT

by

Roy A. McGalliard

TEACHING WRITING IS A RELEVANT ACT

by

Roy A. McGalliard

To open a conference on technical writing with a paper whose title encompasses as much as is suggested by this title may seem to lack wisdom. The title was chosen with the hope that a few general remarks about the pedagogy of writing may lay the proper foundation for what is planned as a practical discussion by some rather noteworthy people of effective ways to teach technical writing.

In the process of preparing this paper, I paused to reflect on speeches and papers which I have heard in the past few years. I also read promiscuously from College English, The Four C's Journal and various other sources. Then, in Wordsworthian solitude, I began to formalize my reactions to what I had heard and read. The lion's share of the material on which I began the process of rumination is an indictment of our profession. We are accused of being irrelevant, traditional, and tedious ..., and, for the most part, these charges are leveled at our profession by our colleagues. I must admit that I tend to see these exercises as a sort of intellectual "Watergate" where one attempts to prove the virtue of his villainy by relating the villainy of his peers.

There are two rather general ideas which I propose to address myself to in this introductory statement. I would like to examine the teaching of writing as a relevant discipline and to put forward some ideas relative to evaluation, which germinated out of my experience as a department chairman at Western Piedmont Community College.

The spore for the first idea which I want to discuss is the title of a paper written by Dr. Fred MacIntosh, Director of Advanced Composition at University of North Carolina, Chapel Hill, "Teaching Writing for the World's Work." I submit that if you are prone to feel that your profession is irrelevant, then this title alone should reawaken your sense of the value in the work you do. It is a generally accepted fact that 85% of all communication in the world of work is conducted in written form. When you are told that electronic communications have replaced written language, smile generously for you are talking with a fool.

Dr. MacIntosh, in his paper, points out that 95% of all technical writing consists of traditional words and structures. Only 5% of technical writing then employs subject oriented jargon. The structure of the technical document is the same structure used in more conventional writing. The fundamental difference turns around format which is dictated by the need for directness and conciseness in communication.

There exists in most institutions the attitude that technical writing is a separate discipline and that those who teach technical writing are lesser men. There is also a tradition that academicians are not capable of teaching the technically oriented student. The dichotomy between practical and theoretical approaches to subject matter is the commonly invoked incantation against traditionally prepared English instructors and their function in the realm of technical or vocational education. Senior and graduate institutions generally recognize the fact that composition is the bailiwick of the English department; however, the English department tends to segregate technical writing and the instructors who indulge in that art, looking askance at their impurity. It might be worthy to note that Chaucer, who is sometimes called the Father of English Literature, wrote, in addition to The Tales of Canterbury, "A Treatise on the Astrolabe."

The point which evolves from the spore left by Dr. MacIntosh's title is that the art of technical writing is not a lesser form but simply another genre long ignored by little men. I remind you that Shakespeare and Milton put aside their literary ambitions to earn their bread and in the quietness of their closing years resumed their quest for literary excellence. From the solitude of Stratford came The Tempest, and from Milton's tempest of blindness came Paradise Lost.

I do not propose that technical writing become an art; I submit that it already is an art. I further submit that the foundation of this art is the same foundation on which the novel, the short story, the poem, the essay, and the drama have been built. In order to be comprehensible, words must become sentences and sentences must be joined into paragraphs, etc. Only the format and subject matter establishes the distinction between the traditional and the technical composition. What can be more aesthetically technical than Cleanth Brook's discussion of "The Canonization"? What can be more analytically definitive than Aristotle's "Poetics on Tragedy"?

Not every student who sits in your class will become an English teacher; however, in the present state of the discipline, many of our English majors will become technical writers. The obligation then is clear. We must teach our students to write, and not only must we teach them to write about literature but about the work of the world. Our place in academia is only as insecure as we are inferior to the task of teaching writing. Everything we teach in composition is a tool with which our students will build their future.

The problem which is our greatest obstacle to successful teaching is the adequate motivation of our students. I have no pat answers for that dilemma, and I believe that therein lies the answer. There are no surefire formulas.

If innovation has a place in our discipline, it is here that it must be employed. In the name of innovation many English teachers have become iconoclasts, destroying traditional cliches only to raise up new cliches that are no less trite than those they have smashed. If our goal is only to "turn our students on," we have only done half the job. We must also give them the tools with which to express their new found ideas and with which they can render those ideas into a form that is comprehensible to their audience. Basically then, we must provoke the desire to communicate and provide the means by which the student can accomplish that desire. Since 85% of the world's work is 95% standard English, I suggest we start there.

At the '73 Conference of SCETC, one of the publishers was passing out buttons which labeled the wearer "A Word Nut." At that conference a gentleman reintroduced me to a word that I must have met at some point in the vagaries of my educational travail, but which had never been incorporated into my active vocabulary. Dr. John Fisher, then president-elect of the MLA, in his discussion of the impact of organized labor on the teaching profession, reminded us that we lived in a society based on the principle of a meritocracy. Dr. Fisher's word meritocracy is then the spore for the second idea which I wish to examine here. How does the English teacher evaluate the success or lack of success of his composition program?

A noted science professor (who is so noted that I have forgotten his name) was discussing the merits of evaluating instructors by examining the grades which they give their students. He told of a colleague who was very proud of his efforts in a particular course. This colleague boasted that he taught a damn good course, and as evidence of the validity of his course, he pointed out that 90% of the

students enrolled in his course flunked. The colleague went on to say that he had high standards. All of this prompts me to recall Ben Jonson's "To My Beloved Master Wm. Shakespeare." Jonson postulates that the high praise of a bawd or whore is the easiest means of defaming a virtuous matron. And I suspect that many an academician has sought to hide his own inadequacies in the guise of academic excellence.

If I were to view my own English department through the jaundiced eyes of the academician to whom I have just alluded, then our department is a disgrace to our profession. Over the past year our department has consistently given no less than 85% of our students the letter grade of A, B, or C. An average of 15% received a D, F, I, WP, or WF. And yet, if all I based the success or failure of our program on was these two bits of information, I would still not know whether we were serving the needs of the students whom we are thrusting our into a cold, cruel meritocracy.

End of term evaluation is a fine thing for telling us how well the student has learned his tricks. If, after hours of careful instruction, your student still writes fragments, commits subject-verb disagreements or has no sense for the importance of unity or coherence, you have not succeeded. However, if the majority of the class has learned to avoid these "tragedies," you have succeeded, but in what?

The soul of the problem is to determine not how well the student does in English 101 but how well he does in English 450 or Political Science 392 or Biology 445. In short, has English 101 made it possible for your student to succeed after he has left your class? Did you prepare your student to do the job out there in that meritocracy toward which he ventures bravely?

In attempting to evaluate our program, we felt that we must look beyond Western Piedmont. I am sure that your school has, within a reasonable distance, a senior institution to which the larger portion of your students transfer. In our case it is Appalachian State University. The Director of Research and Development at Appalachian has done several follow-up studies to determine the success of our graduates, and to compare their success with the success of Appalachian's native juniors. The information we received from Appalachian is that our graduates fall only a point or so behind the native at the end of the junior year and that they do as well as the native junior at the end of the senior year. We are also told by other studies that 87% of all our students who transfer are successful in their bid for the baccalaureate. Although it may be fragmentary, this type of information is indicative when you are trying to determine the success of your graduates.

Another way to judge the quality of your program is to encourage contact with graduates after they leave your school. One quick way to do this is to show a sincere interest in their futures. When they stop back for a visit, take the time to talk about their plans and ask their advice for your programs. If your student (graduate) feels he can make a contribution, he is more apt to continue his visits. Through one student at University of North Carolina, Chapel Hill, I am able to keep tabs on five of our graduates.

Another way to evaluate your program is to estimate the esteem with which senior institutions hold your school. If your students find it difficult to transfer their credits, you can be sure that the institution looks at your transcripts with a suspicious eye.

When we take all the feed-back we have been able to collect, we at Western Piedmont feel sure that our students are succeeding. If I hark back to our scientific colleague, Western Piedmont's standards may not be much; however, our students do learn to write and are able to get an education.

Of course, these facts have dealt only with transfer course work. But only after our department had proven that it could teach were we allowed to handle technical writing. Now we are faced with the problem of evaluating the success of our technical writing course. I will be frank with you. This problem will be more difficult to solve. However, we will take our initial step by surveying instructors in sophomore level technical courses to determine the quality of written work being done by our technical students. We also propose to do a series of follow-up studies on technical and vocational graduates to see how well they are doing after entering the working world.

This brings me back to Dr. Fisher's word, meritocracy. Whether we like it or not, our students, regardless of their programs, will enter a world which has a punitive grading standard. If our business major is a teller in a bank and does not count very well, he will flunk banking. If our registered nurse does not give prescribed medicine to the proper patient, she will flunk nursing. And if our graduates, industrial engineers, law enforcement officers, mental health assistants, nurses, accountants cannot write, they will always be simple technicians.

The discipline of English gives our students the ability to rise in a meritocracy because they can communicate in a medium that is essential to the conduct of the world's work. What we do is relevant; it may be traditional and at times tedious, but it is useful and is not a skill required only of the literati.

THE DEMANDS OF INDUSTRY ON THE TECHNICAL WRITER

by

David M. McLean

THE DEMANDS OF INDUSTRY ON THE TECHNICAL WRITER

by

David M. McLean

During this conference, you are going to hear a great deal about how to teach technical writing. My emphasis, however, is not on how to teach it, but on how the information you teach is put to use. Before we can discuss What Industry Demands of the Technical Writer, we need to take a brief look at industry, particularly the aerospace industry, and the framework in which the writer/editor operates. The Orlando Division of the Martin Marietta Corporation is a typical example of an aerospace company; that is, a company in the business to design, develop, test, and manufacture systems for the Department of Defense.

At the Orlando Division, we have approximately 7,000 employees housed in a modern facility on 2,600 acres southwest of Orlando, Florida. Our products include surface-to-surface systems, ballistic defense systems, strategic air defense systems, tactical air defense systems, tactical weapon systems, and communications systems in support of the military services.

As part of the 7,000 employees, we have a group we call the Presentations Department. This group consists of about 250 personnel, of which 50 are writer/editors. The writer/editors, assigned to the specific product areas, are responsible for all forms of communications -- we will get to these in a moment. The non-editorial groups are the support areas, such as the print shop, photo lab, etc. As you will see, we have a total inhouse capability.

For copy preparation and layout, we have a complement of IBM Magnetic Tape Selectric Typewriters and Composers staffed by competent personnel

working two shifts per day. This gives us the capability to rapidly produce justified as well as unjustified copy in a variety of type faces.

Art requirements are produced by skilled illustrators proficient in design and report art. They prepare, working two shifts per day, complex line art, slide arte, and conceptual art.

Our still photographic laboratory, staffed two shifts per day, is equipped with automatic and white and color processing facilities as well as copy cameras, enlarging equipment, step-and-repeat equipment, and a large studio. Over 50,000 color prints and 70,000 black and white prints are processed annually. Negative and positive work is also accomplished in support of printed circuit manufacturing - with line width tolerances of 5 ten-thousands of an inch.

Our print shop supports everything from simple reproduction and copy work to four-color process printing. Supporting us three shifts per day, the print shop turns out over four million units per month.

In the audio-visuals area, we have a complete motion picture operation including a sound studio. Our closed circuit color television operation provides the capability for producing training tapes for both inhouse and customer use. Vugraph transparencies, one of our most popular items, can be prepared very rapidly by our visual aids personnel using the latest equipment.

Our Technical Information Center contains over 15,000 scientific, technical, general reference, and management oriented volumes. Over 110,000 reports are filed in hard copy.

The reproduction area maintains accountability and control of all released, or official, engineering drawings. In addition to the standard drawing reproduction equipment, this area microfilms all drawings and maintains a central computer operation that permits engineers to call up drawings on monitors throughout the plant.

With all these wonderful support facilities, and a staff of 50 writer/editors, who are our audiences and what types of communications do we handle?

Our audience is a large one consisting of many diverse groups. Since our customer is the Department of Defense, our biggest audience is DoD and the military services. But the Department of Defense is divided into many directorates and agencies; so are the services, and each has its own goals and objectives. And then there is Congress - they vote on whether or not our programs are needed, and if they are, how many dollars should be spent on them. The general public is an audience; even though we do not produce consumer goods, the general public owns our stock. In addition, we are part of the community, and we want good community relations. Our employees are another audience. And since we recruit new college hires each year, college students are another audience. Each year we produce material specifically aimed at each of these audiences.

The types of communications material we produce cover the entire spectrum. But our bread and butter is the technical report and the technical proposal. Most of our contracts include specific reporting requirements and our customers pay us to produce the reports. Technical proposals, on the other hand, are necessary to win new contracts. In addition to the reports, many contracts call for design reviews, briefings, and progress films. In support of these contract requirements, and in support of our marketing personnel, we produce many visual aids and films.

Many other items are required to support our marketing objectives: Fact sheets, flyers, brochures, giveaways, hardware photos, trade journal covers and articles, trade show displays, and many others. And this is where the writer/editor comes in. He produces all this material.

It is in this context, then, that we will discuss the role of the writer/editor and what we expect from him.

In the case of each of these many forms of communications, the writer/editor produces the material, and more often than not, the material is the primary interface between the corporation and the customer or prospective customer. On a typical contract, it takes months to produce hardware and often years to produce a total system. In the interim, much of the corporation's reputation and its performance on the contract is measured in terms of the reports it submits.

The writer/editor, therefore, has two primary objectives. In terms of the report or proposal, the objective is to publish a logical, meaningful document that fulfills its objectives. In terms of marketing materials, the objective is to define a communications problem and develop an effective solution.

Since the reports and proposals are our bread and butter, I will orient my remarks toward their specific objectives.

Given an assignment, the writer/editor must first determine the objectives for that assignment. If a report, is it a test report, a progress report, a final report - the objective for each type of report is different, and the writer/editor must know that objective. Several years ago a report was submitted to us for publication by an engineer. It was a test report on a hardware item, and consequently the objective of the report was to present the results of the test. The report input stated that the test fixture had failed during the test, and that a redesigned test fixture was being readied for a retest. The writer/editor concluded from his preliminary review that the test had not been conducted, and therefore a report on results of the test could not be written. He was right, and the report, which was no more than an account of a test fixture, was not published.

The writer/editor has to analyze his audience. Even within the same military agency, the audience varies. Specifically, for example, an aerodynamic wind tunnel test of a missile system has to be reported on in a test report, and in a monthly technical progress report. The audience for the test report is a competent aerodynamist who wants to analyze the detailed data for the military. On the other hand, the military program manager is the audience for the monthly technical progress report. Although he is technically competent, he may not be an aerodynamist. In any case, he does not want the specific details - he wants to know the overall results and how the results impact the overall program. Since our aerodynamist who conducted the test will prepare both inputs in considerable technical detail, the writer/editor must know the specific audience and rewrite accordingly.

The writer/editor must also determine the specific contractual requirements for each assignment. Many contracts dictate specific contents, format, or even page limitations. The writer/editor must know these requirements before he can successfully fulfill the contractual requirements.

Having determined the objective, analyzed the audience, and reviewed the contract requirements, the writer/editor must scan the input for overall organization, redundancy, contradictions, inconsistencies, incompleteness, and logic of conclusions and recommendations. While he must depend on the competence of the engineer who wrote the report for the basic material and the specific data points, the writer/editor has the responsibility to determine if the report communicates. The design and test work done by engineers is certainly based on logic, and their thinking is generally very logical; but many of them produce illogical copy. Perhaps they are too close to their work, or they prefer to do design work rather than write about it, or they had too little time to properly prepare the report. Whatever the reason, the engineers are educated as engineers rather than as communicators -

so the writer/editor, as an expert communicator, must ensure that the report communicates.

Once the writer/editor has determined the overall problems with the input, he must accomplish the reorganization, resolve the inconsistencies, rewrite as necessary, and solicit additional inputs as required. In doing this, he must be a master politician. Although engineers may be poor writers, they are human beings and their copy represents a personal output on their part. You will turn an engineer against you if you tell him his copy stinks. On the other hand, by being tactful, he will soon learn to depend on you because you make his reports, and consequently him, look better. A young writer/editor was very upset one time when a grizzled old engineer complimented him on a report, saying "that was a great job, you didn't change a thing." Since the young writer/editor had completely reorganized and rewritten the report, he felt like the engineer didn't appreciate his efforts. It took me quite a while to convince him that he had done a superior job in that he accomplished a difficult task without changing the technical meaning or irritating the engineer.

With the overall content edit complete, the detail edit begins. Grammar, spelling, and punctuation must be corrected, facts must be checked out, tabular material must be formatted in an understandable manner, art work must be edited, and numerous other detail edit functions performed. Although these functions are important and must be done, I am only briefly mentioning them because the treatment of overall content is much more important in terms of total contribution.

After the content review and detail edit, the writer/editor is sufficiently knowledgeable about the material to write a succinct, meaningful summary. The summary presents, for management level personnel, the most important items in the report and their significance in terms of the overall

program. The material is then processed through the production operations and submitted to the customer.

With this brief overview of the writer/editor's role, you can better understand the skills required to perform this role.

The most important single skill required of a writer/editor is to have his head screwed on right. That is, he must have common sense; he must be able to handle himself well on his feet. In our real world environment, he will be working with all levels of personnel, from vice presidents right on down, and must be able to display common sense as well as job related knowledge in order to gain the respect and confidence of those he is dealing with.

The writer/editor must be able to work under pressure. Tight schedules and deadlines are as much a part of our daily routine as they are a part of the news media. Requests for proposals often come in with only 30 days permitted for a response. Several days are used up by the postal service in delivering the request, and the remaining days must be divided among conducting a market analysis to see if we should bid, accomplishing the preliminary design work, writing, editing, and publishing the proposal, and delivering the proposal to the requesting agency. All this means tight deadlines, and often overtime. In addition to tight deadlines, each writer/editor generally has several assignments going at the same time. So pressure is very much a part of our industry.

The ability to see the big picture - the overall significance - is an important characteristic of the successful writer/editor. The best detail edit possible is poor at best if the significant message does not come through loud and clear. Our technical directors often say that the writer/editors have a better overall understanding of the programs than the engineers. This is because the writer/editor works with all the various engineering

disciplines, and in addition, is keenly aware of the marketing objectives and strategy, while the engineers often have tunnel vision, limited to their own particular discipline. Without this capability for total overview, the writer/editor could only give a tunnel vision edit.

The writer/editor must be able to compromise - and more importantly, know when to compromise and when to hold his ground. A writer/editor who is persistent in every little detail will win the battles, but he will lose the war. In working with other people's inputs, the rewrite and editorial function is a give and take situation. For example, a writer/editor that fights the author on every word will find himself also fighting with the author on the basic organization. On the other hand, if he compromises with the author on the minor items, he will find the author more susceptible to the significant changes.

A writer/editor must be able to work alone on some assignments and as a team member on other assignments. And the role is different in each case. On an assignment where the writer/editor works alone, he is responsible for the entire effort and must therefore do everything that is necessary to meet all objectives. On the other hand, if he is working as a team member, he will only have responsibility for a segment. One proposal we submitted back in the sixties took a year to prepare and the final submittal was over 23 thousand pages. Over the year, more than 25 writer/editors were assigned to the effort. Each writer/editor, obviously, could not be responsibile for overall organization, content, message, and so forth, so each was given a piece of the action. The supervisor and group leaders had to be responsible for the overall content and organization, so the individual writer/editors were relieved of that responsibility. But they had to be very careful about style, abbreviations, and format since their copy had to be consistent with that of other writer/editors.

The writer/editor must be proficient in human relations to deal with the authors and editorial support groups. The writer/editor must positively influence authors so that they realize the maximum effectiveness of their technical expression and mature professionally in the process. If an author is allowed to sluff off and submit poor inputs, each subsequent input will generally get worse. But if the author is required to exercise his logic in terms of writing, he will usually meet the challenge by providing better copy. The ability to properly interface with the editorial support groups is necessary to derive maximum benefit from their services. This places the writer/editor in the roll of pseudo manager and specialist. To a very great degree, he controls and influences the particular functions when his job is going through the system. He is very much like the home builder who subcontracts his own home, and is anxious that each of the subcontractors give him the most for his money.

Based on these skills required of a writer/editor, let's take a look at some of the specific evaluation factors we use in our college recruiting.

We certainly want to see demonstrated writing skills. The writing samples of applicants carry a lot of weight in our evaluation since they are a good indication of ability. The samples that are well organized and meaningful tell us something, particularly if the applicant understands what he has written about. Samples that have careless mistakes - typos and misspellings - certainly don't help an applicant. Students are often stunned when we review their work and point out errors, or ask questions about their material that they cannot answer. But since we interview a hundred or so each year, and hire only five or six, our standards are high.

We look for more than just class assignment material. Specifically, we look for applicants who have taken part time jobs in the communications field. While those working in construction or as waiters may earn more from

their part time jobs, those working the communications field have demonstrated a professional commitment and have gained valuable experience as well.

Research capability is another key factor in evaluation since the writer/editor has to do so much research. In addition to the actual research, we question applicants to see if they understand the material they have researched or if they just copied down material without understanding it. Shallow knowledge or lack of understanding about a subject in writing samples represent a superficial treatment and are negative factors in our evaluation.

An interest in science and math is almost a must for our writer/editors. Although the writer/editors we have now have degrees in a wide range of subjects - including law, romance languages, psychology, business, geology, music, and sociology as well as journalism, communications, and technical subjects - they have an interest in and an aptitude for science and technology. An applicant who tells us he wants to be a technical writer/editor but took all his electives in sociology doesn't convince us. Electives in science, math, and engineering courses demonstrate a true interest in technology.

Although not nearly as significant as the items mentioned already, a knowledge of production processes is an asset to us, and students with printing or photo lab experience get a higher rating. This type of knowledge is generally only attained by actual work experience, so it often directly relates to on-the-job writing experience.

Appearance is also important. Since our writer/editors are in daily contact with people in high management positions, they must be presentable enough to be accepted as professionals. We don't mind long hair or beards if they are neatly groomed. Although not always true, sloppy personal habits are often taken to be representative of one's work habits and performance.

In summary, we have looked at the types of communications material the writer/editor produces, the audiences for this material, the role of the

writer/editor in producing this material, and the skills he must have. If we ask the question again, "What Are the Demands of Industry on the Technical Writer?," we must answer by saying industry expects him to be a combination salesman, writer, and leader with the stamina of a bull.

Part II

This part contains three papers which answer the rhetorical question, "How do I teach technical writing?" The assignment to each of the presenters whose papers are herein published was be specific, be practical, be detailed. I am pleased that the presenters took the assignment seriously and complied with their instruction.

A word may be necessary about the selection of the participants on the program. I chose them for a variety of reasons. Mr. Carter is the product of the creative writing program at Iowa and has a diverse background of technical writing and teaching technical writing. Mr. Fear was chosen because I was impressed with the technical writing textbook which he wrote for Random House. Ms. Norman has a unique background of practical work in the world of work and also has academic work with degrees in English-Education rather than pure English. The end result of bringing together these diverse backgrounds was a useful program. This judgment was the universal sentiment of those who attended all the various sessions.

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How Do I Teach Technical Writing?

Whenever I open a journal or fly off to a conference, I do so secretly hoping that this time I am going to find it -- the magic key, the technique or method that will turn my rather plodding, workaday courses into exciting, dynamic, pulsating things with students begging to be admitted and even the most illiterate adolescent blossoming into a writer of precise, vigorous, and penetrating prose. I haven't yet found the formula, and I'm beginning to suspect that it doesn't exist. But I keep looking.

And so, when I am asked, "How do you teach technical writing?" I must respond with another question. Or, rather, a series of questions: "What do you mean? Do you mean, 'How did I teach technical writing last time?' or 'How am I teaching technical writing right now?' or 'What do I plan to do next time?'"

You see, I'm the sort of teacher that gets jumpy when there are two of us teaching different sections of the same course. I hover around outside the other fellow's classroom, convinced that he's doing it the right way and that my students will soon find out and defect. In fact, it is quite possible that as I listen to my two colleagues on

this panel I will be mentally shredding my own course plan and adopting theirs.

Nevertheless, there are some basic elements in my approach that have not changed for some time now and that I don't anticipate changing in the near future -- although one never knows. At any rate, these basic elements are grounded in certain assumptions I make, assumptions about my students, about technical writing itself, and about how writing is learned (and by implication, how it can best be taught). And I guess these assumptions constitute my educational philosophy (or perhaps I should call it my technical writing philosophy). Rather than describe that philosophy, however, I would like to plunge directly into my method. In telling you what I do I will, I am sure, tell you why I do it. And so you will have both method and philosophy, but with the emphasis on action rather than theory.

Having said that, I must immediately do just the opposite and identify the one underlying assumption that shapes my entire approach. I firmly believe, given the type of student taking the course and the nature of the subject itself, that the technical writing classroom should, insofar as possible, parallel the working world.

Now, what does that mean? It means, first of all, that the student should be asked to work at the kinds of writing he might realistically be expected to produce on the job. If the student can see a direct connection between what he learns in the classroom and what he must do in his future career, he will be willing to work with you. Not eager, perhaps, but willing. I do not spend much time

trying to convince my students that they must know how to write. Most of them already know that writing will be expected of them on the job. The problem is that they have never been asked -- indeed, they have never been permitted -- to write the kinds of papers they know they will have to write when they leave school.

And what kinds of writing will they have to do on the job? You can find out easily enough by asking people. Many of my assignments come directly from my colleagues in the technical disciplines. Others result from calls to personnel managers in local industries, who are usually more than willing to help.

I have found, by asking the people who know, that a course focusing on the long technical report is unrealistic. Most of my students will not have to write long technical reports. Instead, they will be writing short descriptive paragraphs and letters -- descriptions of parts, machines, and processes. They will be writing brief explanations, lab reports, job descriptions, proposals, and letters requesting and providing information. Even if they are involved in writing a long report, each person will most likely write only a section of the final document.

Again, the classroom should parallel the working world. This means that all assignments should be given in a situational context. For example, I do not ask a student to write a description of a mechanism, not in those words. Instead, I give him a situation: "You are working for a company that has just been sold to a conglomerate. The managers of the conglomerate have asked for a detailed

descriptive inventory of all equipment owned by your company. Your supervisor has asked you to give him a physical and functional description of the machines you use in your daily work. He will then compile a complete inventory for your department."

And when the student writes his paper, he is required to follow the rules. For there are rules. Many of them are silly, I admit, and reflect the prejudices and misguided status-seeking of our society. However, I make no apologies for them. When the student goes to work for real, he will be expected to know and follow these rules. He will be expected to speak and write in standard English. He will be expected to spell correctly and punctuate correctly. I have worked for many people who knew little about what constitutes good writing, but they damn well knew mispelled words when they saw them.

There are other rules. Some equally silly -- attendance, for instance. But attendance is required on the job. Why shouldn't it be required in the classroom? Others are more important, the big things -- organization, clarity, getting specific, being factual.

And so, having digressed sufficiently, I would like to take you into the classroom so to speak. I suppose the best place to begin -- always -- is with the student. What does he experience when he enters my technical writing classroom at the beginning of the quarter? First, he is given the rules. Sometimes I can see him pale visibly. He's been up against all this before. In fact, he's been bludgeoned with rules for twelve years or so, and it hasn't done much

good. He doesn't reject the rules; he doesn't even realize that many of them are based on some pretty shaky assumptions. He just knows that he hasn't been able to learn them. And even when he has -- when he is able to breeze through all sorts of drills and exercises -- he still doesn't seem to be able to get it right in his own papers.

So, with the student sitting there on the verge of filling out a drop slip, I'd like to talk about another assumption. We are not really leaving the classroom, however, because this is an assumption I discuss thoroughly with the students. My assumption is that writing -- putting words on paper -- precedes rules. Rules are ex post facto; they result from our attempts to pin down just what makes for effective writing. For instance, as I write this paper, I am not trying to follow a set of rules. I am simply trying to explain what I do as clearly and inclusively as I can. When I complete a rough draft, I will try to look at the paper as objectively as I can, and it is then, if ever, that the rules become significant. If I find that I am not communicating clearly, I may find the rules useful. At this point, of course, the rules function not so much as rules, but rather as guidelines. On the other hand, I may succeed in communicating clearly without reference to any rules at all.

I can quote a lot of rules now. When I went to work as a technical writer in 1962, I knew very few rules as such. And yet I wrote -- adequately, I think. I learned the rules after I became a teacher; I learned them because I had to teach them (or, rather, I thought I had to teach them) to developmental students.

It is this one assumption -- that rules, absolutely all rules, are secondary -- that more than anything else dictates the manner in which I conduct my class. My class is a workshop. My students write, trying to say something as clearly as they can. When they finish, I read the papers. At this point, I function somewhat as a doctor. If a paper does not communicate clearly or if it violates any of the formal rules, I "prescribe" any of a number of learning activities. (I will describe some of these later.) Then, the student rewrites the paper. He rewrites it as many times as necessary until the paper is "perfect." ("Perfect," of course, varies from one student to another.)

Individual papers are not graded. When the student completes a paper, I check it off as complete and he moves on to the next project. Writing a paper, therefore, need not be a traumatic experience. Rather, it is a learning activity which becomes, potentially, an opportunity for the student to grow in both skill and self-confidence.

I believe that the student needs two things from a course in technical writing. He needs to learn how to write a clear technical paper, and he needs to learn how to act as his own editor. In my class, his final grade is based on the progress he has made toward these two goals. During the quarter, I advise him periodically as to the grade he is then earning. Grades, however, are not averaged. In the end, he is graded on what he is doing in the last 2-3 weeks of the course.

Grading is a tricky and necessarily artificial business. This method works for me, and most of my students seem satisfied with

it. I fail to find anything appalling about the obvious subjectivity. The student, it is true, is pretty much subject to my judgment of what constitutes a good piece of technical writing. However, I make every effort to show him what I am looking for. When he goes to work, he will be subject to his superior's judgment of what constitutes good writing, and it has been my experience that one's boss is under no obligation to define his criteria. As an advertising copywriter, I often found work over which I had sweated blood lying on my desk with a vague critical comment like, "This stinks" or "What is this piece of crap?"

So, at the first meeting of the class, I give the student a pretty solid preview of the course procedure. Then we spend a couple of weeks simply working at and talking about writing. We work inductively. We look at all sorts of writing -- advertising, news articles and editorials, technical papers, catalog descriptions, even poems -- and try to pin down just what makes some more effective than others. And we write. (Whenever possible, I write with the class.) We write short descriptions, requests, explanations, and look at the results together, formulating our own guidelines, not rules, for clear writing.

We do some warm-up exercises. I particularly like one I stole from It's Mine and I'll Write It That Way. (You have my permission to steal it, too.) We each make a design using a triangle, square, circle, rectangle, and parallelogram. We don't let anyone see our designs. Then we write descriptions of our designs and

exchange papers. We try to reproduce the design on the basis of the written description. As you might suspect, the results are pretty revealing. There are other possibilities -- students can be asked to describe objects without naming them. Then, they read their papers to the class, and we try to guess what each paper describes. The point is to see words in action and to see why some succeed where others fail.

After about a week and a half of this sort of thing, I narrow the focus to technical writing. I try to identify the specific requirements of a technical paper. This is what I tell them:

1. Put the essential information first. Remember, your reader is a busy man (or likes to think he is); give him every excuse in the world to stop after the first paragraph. (To stop, that is, because he has the information he needs.)

2. Break your paper up into manageable blocks and identify these with subheads.

3. Do not fall into the trap of imitating bureaucratic jargon.

Once I've said these things, I've said just about everything there is to say. It is time to get to work.

There are two separate sets of activities going on during my class period. There are my activities, and there are my students' activities. Let me describe my activities first. I spend most of the class hour conferring individually with students about their papers. I may spend a few minutes at the beginning of the period explaining an assignment, discussing a problem that seems to be cropping up fre-

quently, or answering questions. After that, however, I sit down at my desk or table, pull a chair up beside me, and talk with students one at a time. Let me assure you right now that there is no problem at all in getting to each student in the class as often as necessary during the quarter. As many of you no doubt know, this particular technique is not original with me. It has been rather thoroughly described by Roger Garrison, Tom Ganey, Donald Murray, and others. Their books and articles attest to the ease with which even a very large class can be handled in this individualized manner. I have used this approach successfully with classes of twenty-eight students.

The conferences are brief. My role is somewhat like that of an editor or, as I said earlier, a doctor. I try to do two things -- identify the student's major problem in that particular paper and give him sufficient direction to enable him to eliminate that problem in a rewrite. I look at the important things first -- structure and content. Once these two areas are satisfactory, we move on to mechanics -- grammar, spelling, and punctuation. I consider corrections in this category a matter of proofreading. Identifying these errors as proofreading errors accomplishes, I think, two important things. It communicates to the student that these are not the essential elements of clear communication, and yet it does not permit him to overlook such matters entirely.

Okay, let's look at a hypothetical case. The student is given his assignment. Again, the assignment is given in terms of a situation. This one, let's assume, asks the student to make recommendations for staffing a new branch office of the company he works

for. He is to investigate the location and function of the new branch (I will supply these details) and write a report describing the scope of his investigation, his findings, and his recommendations. The paper is due on a specific date. I accept late papers, but an accumulation of late papers will markedly affect the student's final grade -- as it would affect his evaluation as an employee.

The student's objective is to write a paper that requires no rewriting or correction. His final grade, again, will reflect his progress toward that objective. Let's assume that this is an early paper, and there is an organizational problem as well as several mechanical errors. As I said, I deal with the major problems first. This student has written a long, leisurely introduction, or lead, describing his investigation. He has put the recommendations at the end of the paper. However, his supervisor specifically asked for recommendations. The other information serves only to substantiate the recommendations. In this case, the supervisor -- always, in my class, a hypothetical "busy man" -- must read through the entire paper before he gets what he asked for.

Here I would simply discuss the problem with the student and send him back to reorganize his paper. Sometimes, of course, the problem is more complex. In such a case, I might direct the student to a section of the textbook. I use two textbooks -- Harbrace College Handbook and Nell Ann Pickett and Ann A. Laster's Writing and Reading in Technical English. I do not "teach" these books. I use them as back-up materials, or resources. Some of my students never open either

of them. If, as often happens, the student claims he just can't understand the text, I might send him to any of a number of audio-visual aids. These, however, I find more helpful for correcting mechanical errors. They are not usually flexible enough to be of much help in working with problems of structure and content. In fact, the conference itself is usually sufficient to deal with problems in either of these two areas.

Lately, I have been using small groups of students to review papers weak in either structure or content. This device has been mildly successful. The students cannot always come up with a solution for the problem, but they are forced to exercise their critical and editorial skills. This, of course, gets us into the students' activities, which I will discuss more fully in a moment.

Let's assume now that our hypothetical student returns with a paper that is structurally sound and adequately developed. I can give him, figuratively, a pat on the back -- immediate reenforcement, I believe this is called. And then we turn to the mechanical problems. Remember, my aim is to enable the student to act as his own editor. Therefore, I do <u>not</u> specifically identify these errors. Instead, I will say something like, "You have a punctuation problem on the first page of your paper. Read pages 10-12 of the handbook and see if you can figure out what it is." The student must, therefore, have some understanding of the error in order to find it and correct it. He cannot simply insert a comma

because I say he needs one.

If the error is persistent, I may assign the student an exercise. Or I may send him to do some work in the Learning Lab. It is here that I find audio-visual materials helpful, especially with technical students. And I find that if I send them to these materials in small groups, they are more apt to involve themselves in the lesson.

Where I teach, we have a rather imposing machine called a Didactor that requires students to interact with it in order to master a particular principle or concept. Students using this machine alone are easily frustrated and sometimes, unfortunately, insulted by what the machine has to say to them. (While I was reviewing some materials once, it told me either to start paying attention or leave.) A group, however, develops a kind of game attitude, and I have actually had several students ask me to send them to the Didactor to learn about some grammatical principle that was troubling them.

I handle spelling errors in the same way. I simply tell the student that he has mispelled four words -- or five, or whatever. It is his job to find them. If a student has a serious spelling problem, I <u>might</u> assign him a programmed spelling text, although I have little faith in these and usually encourage him simply to use a dictionary and ask a friend to look over his papers for spelling mistakes.

This brings up what at first might seem to be a potential problem with this approach. What is to prevent a student from taking

his paper directly from the conference to a friend, bypassing handbook, audio-visual materials, and whatever else I might have assigned him? In most cases, there is absolutely nothing to prevent this. And that is all well and good. Remember, the student's objective is to get the paper right the first time. If he learns that he needs a reliable proofreader in order to get it right, then my hope is that he will use his proofreader on the first draft. And I would further hope that he might do the same thing when he writes a paper on the job. After all, I will not consider this paper completed until it has been read by at least one other critical reader. And I don't think I have ever given a piece of writing to a superior without first soliciting such help.

Now, what are my students doing while I am holding conferences? Sometimes they are doing nothing. A student may be required only to report to the classroom at a given time for his conference; he is free to go when I have finished talking with him. Usually, though, the students are working together on any of several group projects.

Before a new quarter begins, I prepare a rough "scenario" of class activities. This "scenario" consists of a number of things. As I have indicated, some of my assignments are given in the context of a group report, a practice I feel approximates the situation the student will encounter on the job. I require, for instance, a kind of research paper. I have found, however, that very few of my students will ever have to write research papers. But they will have to

gather information. So I divide the class up into groups, ask each group to select a topic and write a letter to one of the other groups asking for a bibliography of source material on that topic. Once the bibliographies are completed, they are sent under letters of transmittal to the various requesting groups, and those groups must then write papers using the materials provided in the bibliography. It's a give-and-take situation. If a bibliography is inadequate, the group that requested the bibliography must go back in writing to the group that provided it and ask for more information. When the information is adequate, the members of the group each write a 2-3 page section of the final report. Then, they get together, edit, and write an introduction and conclusion.

Whenever possible, I try to use a similar group technique to assign specific writing topics. Using the example I gave you earlier -- the conglomerate taking over and asking for a descriptive inventory -- I ask the students in a specific discipline to get together and "divide up" the equipment they are familiar with, each student taking one piece of equipment for his topic. Another example -- when I assign a definition, I ask the groups to identify at least one term for each member of the group and compile a "training manual" for new employees. Many of these exercises necessitate the use of the library, and the students use class time for any such activity. As I said before, the class is basically a workshop.

Another common group activity, particularly toward the end of the course, is a proofreading/editing session in which students

submit their papers to the group before scheduling a conference with me. Then, the conference is held with the entire group rather than just the individual writer of the paper. I previously alluded to a variation of this activity in which a student with a problem in his paper is sent to the group for advice.

Oral communication is part of my course also. Each student makes about three or four brief oral presentations during the quarter. These presentations are not graded. Instead, I ask each member of the audience to fill out a critique form. I compile these forms, add my own critique, and give them to the student. The reports may be presented either to a small group or to the entire class. In most cases, the oral report is simply a synopsis of one of the assigned papers. In the case of a longer group paper, I often ask each member of the group to report orally on the progress he is making with his section of the final paper.

I am beginning to experiment with videotape as a tool for evaluating oral presentations. Recently, I asked each student to write a letter of application and then take part in a simulated job interview. One of my colleagues acted as interviewer, and the interviews were taped. Afterwards, we watched the interviews in class and discussed ways of preparing effectively for the kinds of questions that are asked by an interviewer. Although the presence of the camera noticeably heightened tension, I feel that in doing so it simulated the normally tense atmosphere of a crucial employment interview.

Sometimes I run off copies of some of the papers students

have submitted to me and discuss these with the entire class. And then, there are times when I feel I have something important enough to say to speak to the entire class for a full period. But I am beginning to meander, I see, picking out bits and pieces of the course and presenting them to you. I suppose that indicates that I have covered the basic structure and direction of my efforts. Much of what I have said has been, I am sure, rather obvious. As I stated earlier, I have no magic formula. Last time I taught the course I felt that most of my students managed to improve their writing abilities somewhat. Still, there were at least two students who made no noticeable progress whatsoever; in fact, one of the two turned in papers that grew gradually worse as the course proceeded.

I hope that in laying bare the essential simplicity of what I am doing I might embolden others to do the same. I doubt that such sharing will yield any magic formula, but I sincerely believe it will contribute to the group development of more realistic and viable teaching techniques.

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HOW DO I TEACH TECHNICAL WRITING?

Technical English at Cleveland State Community College is offered as part of the freshman English elective program. It is primarily designed for students in one or two-year technology programs such as inhalation therapy, legal assistance, industrial management, medical laboratory technician, and office careers including general clerical, clerk-typist, secretarial science, and legal and medical secretary. The courses are numbered so that they are transferable as freshman English credit and may be accepted by four year institutions in such fields as pre-medicine, nursing, and business administration.

Technical English at Cleveland State was originally a three quarter sequence; however, in the Fall of 1973 we began offering English 111 (an introduction to language), required of all students. The technical student was then allowed to elect English 112 and 113 for his final two course of freshman English. Course descriptions for English 112 and 113 are as follows:

> English 112 - This course is designed for technology majors. The subject matter for reading and writing will deal primarily in the student's major field of study. Writing of instructions, definitions, analysis through classification and partition, explanation of a process, and reading in technical publications will be the primary focus. Media and light literature will also be used. Pre-requisite English 111 (Introduction to Language).
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> English 113 - This will be a continuation of Technical English 112. The focus will be on more advanced writing skills for technology majors with continued emphasis in the student's major field, increased reading and interpretation of technical publications, and listening and speaking skills for industry. (It will not duplicate the Technical Report Writing course offered in the Business Department.) Pre-requisite English 111 and 112, but not necessarily Technical English 112.

Each year I survey the advisors and instructors in technology programs from which I normally have students in Technical English. I request information concerning the most needed writing skills, types of writing done on the job, and names of periodicals in the college library with which their students should be most familiar. This information is then combined with input obtained from the students who are surveyed during the first two class meetings. The purpose of the survey is to ascertain the students' interests and their self-assessed strengths and weaknesses in the area of general communication. I have found that talking to the students about their past experiences with English courses and having them write personal evaluations are more beneficial than an initial diagnostic test in an area such as mechanics. The personal contact of the above interviews allows me to develop an individualized program to suit the needs of a particular student. I also establish an informal tone to the course by having the students learn each others' names and majors during the first week.

As I get the class rolling, the first assignments are applications from the opening chapters in the required text, Writing and Reading in Technical English by Laster and Pickett (Canfield Press).[1] These applications provide me with additional data by which to further ascertain each student's needs and skills. By the end of the second week the student and I have talked about what he needs to do for the individualized part of the course requirement and appropriate activities begin.

In teaching the sequential two-quarter program of technical English courses, I plan the following general activities for the first quarter. The basic principles and forms of writing that any student needs to know

[1]Ann Laster and Nell Ann Pickett, Writing and Reading in Technical English (San Francisco: Canfield Press, 1970).

are taught as presented in the text (Laster and Pickett). These include giving directions, explaining a process, descriptions of a mechanism, definition, and analysis through classification and partition. Each assignment requires the student to select a topic in his technical field and apply the principles being defined as a writing behavior.

For example, in teaching the unit on giving directions, I have had success with the following exercises, which I have borrowed from Friedrich and Kuester.[2] (1) The student writes his name on a small piece of paper and leaves the building to hide the paper anywhere on campus. After he returns to the classroom he learns he will write directions telling someone else how to find the paper. The student then swaps the directions with another student and goes to find the cache. When everyone returns, the students then understand why they are beginning a unit on giving directions. (2) The student draws five separate and random lines on a ruled sheet of paper. On another sheet he writes directions on how the diagram may be duplicated without showing the original. He provides the directions and a clean sheet to a neighbor who attempts to duplicate the line drawing by following the directions. Afterward, the students discuss how they misinterpret directions. Thus a motivation for accuracy is achieved.

Whenever possible, I use media. When teaching the unit on the explanation of a process, I like to show an eight minute film entitled "Stained Glass: A Photographic Essay"[3] and transferring the audio-visual techniques to a written explanation.

Simultaneous with text assignments, the students work on improving grammar, mechanics, vocabulary, etc., the need for which has been determined

[2]Richard Friedrich and David Kuester, It's Mine and I'll Write It That Way (New York: Random House, 1972).

[3]"Stain Glass: A Photographic Essay," B.F.A. Educational Media, Santa Monica, California, 1970.

through their own evaluation and my evaluation of their initial writings. A variety of programmed materials and exercises for punctuation, sentence structure, wordiness, spelling, etc. are used during free class time. Students are allowed to work in the Learning Resources Center where tapes, workbooks, and such materials are available. A significant number of students are enrolled in fields where spelling is important. Thus, for weak spellers whose jobs require proficiency, I use four approaches to individualized spelling improvement. To learn spelling principles, students work with The Relevance of Words, a tape and booklet program by David Peterson[4] or Spelling 1500: A Program by J. N. Hook[5] which consists of eighty short units. The advantage of both programs is that work only in problem areas determined by diagnostic test is required. The success of the student is affirmed by post-tests which indicate his achievement.

To refresh the careless speller's memory, short packages prepared by the Learning Resources Center or the instructor, concentrating on a single concept, are used. Also, I require the careless speller, over a period of several weeks, to collect a list of two hundred words which he presently misspells. When he has studied them sufficiently, he elects a time near the end of the course to take a quiz to determine the effectiveness of his study. Commonly misspelled words are emphasized.

Building an adequate vocabulary is a crucial matter in the secretarial field and particularly in the medical and legal areas. I recommend that the student choose one of the following three approaches to reinforce his technical vocabulary: master specialized vocabulary lists, with definitions, provided by me and followed up with quizzes of twenty-five words each;

[4]David Peterson, The Relevance of Words (New York: Westinghouse Learning Press, 1972).

[5]J. N. Hook, Spelling 1500: A Program (New York: Harcourt Brace Jovanavich, 1967).

master a collected list of general and special words new to the student which he has encountered in his coursework. The student is required to define these words and is given an oral quiz to determine his mastery. Finally the student is required to complete units from Vocabulary Improvement, second edition by Nancy Davis[6] for root, prefix, and suffix study. He is then quizzed on each unit.

Near the end of the quarter each student gives a five to ten minute oral report on a subject in his field. He defines a process, demonstrates the use of a piece of equipment, or explains an operation which is a part of his technical specialty. His objective is to teach the class something he understands and to gain experience in handling questions and answers. I sometimes include a short essay or short story for reading and class discussion as the need arises.

During the final quarter of freshman (technical) English, I deal with the following projects: the basic forms of writing, the summary, employment resume, business letters and memorandums, from the point of view of cause and effect. Specific forms of writing are incorporated to suit the student's specialty by having him modify some of the above assignments to suit the demands of his field. The entire class prepares and participates in a forty-five minute panel discussion on a topic chosen by the class. It is not necessary that the topic be technical since the objectives of the exercise are to learn how to gather information, to counteract arguments, and to give oral summaries. One five to ten minute oral presentation is given in conjunction with a written assignment. Cassette tapes and filmstrips are used for the purpose of improving listening skills as well as

[6]Nancy Davis, Vocabulary Improvement (New York: McGraw-Hill, 1973).

gaining information of a general nature about the age of technology. In addition to required assignments, the student chooses one additional assignment from a list of optional assignments prepared by me. The student may embark on a continuation of individualized work from the first quarter of technical English; he may prepare a taped interview with a professional in the community; he may read from a list of selected fiction and demonstrate his grasp of the material in a student-instructor discussion; or, he may prepare a short research paper on a specific topic of interest to him.

Although the grading of each individual exercise is evaluated by the instructor and therefore libel to the usual faults of subjectivity, each exercise may be corrected by the student in order to improve his grade. The exercise may be reworked until the student is satisfied with the grade assigned. The final quarter grade is based on a point system which can be evaluated by the student throughout the course. Each required writing exercise is worth a specific number of points. The number of points awarded for optional assignments varies but the student is aware at the beginning of the quarter of the number of points he will need for optional credit. A grading schedule used for the first quarter of work as outlined would be:

Assignment	Possible Points
Applications from Chapters 1, 2, 3, 4	= 70 points
Quizzes on Chapters 1, 2, 3, 4	= 40 points
Oral Presentation	= 10 points
Periodical Evaluations	= 15 points
Individualized Work	
1. (spelling)	= 20 points
2. (specialized vocabulary)	= 20 points
	175 points

Final grade: 175-158 = A, 157-140 = B, 139-123 = D, 121-105 = D

Since technical writing varies because of the constituency of the class, there can be some variation in point assignments and applications from quarter to quarter. Unfortunately, I cannot feel good about evaluation at this time. The one principle I have retained throughout my freshman courses is that students must have an opportunity to correct papers for higher grades. They are students, not employees.

Optional assignments are my biggest problem in grading. I do not know the secret to motivating one student to do hours of badly needed spelling activities when an optional assignment being done by a peer looks so much more inviting than vocabulary lists. Grades hamper me, but not to the extent that the student ever thinks the rollbook is evidence of my final judgment of him as a person.

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HOW DO I TEACH TECHNICAL WRITING?

RELEVANCY AND REVISION--AN APPROACH TO TEACHING TECHNICAL WRITING

EH 157, Technical Communication, at Valencia Community College is a one-semester, three-credit-hour course required for the Associate in Science Degree (all terminal occupational programs). It is currently taken by approximately five hundred students annually (this number is increasing by roughly twenty per cent yearly). These students represent some thirty odd degree programs. Allied medical, public safety, and business related programs furnish the largest numbers of students; but no single major contributes more than ten per cent of the course enrollment, and all sections of the course are heterogeneous. A recent section shows a typical mix: four nursing, four industrial technology; three architectural drafting, three management, three fire technology, two law enforcement, two respiratory therapy; and one each of data processing, medical laboratory technology, industrial security, economics, and library science.

The heterogeneity extends to student age and work experience. The course is taken about equally by part-time evening students and full-time day students. Many students have been working in their major field for several years and are working on degrees primarily for job certification, whereas others are fresh from high school with no work experience of any sort. A large number of students have prior technical writing experience, particularly the retired military men. Several students have even worked as technical writers. At the other extreme are the sizeable number of students who barely scraped through high school English courses.

College communication experience is also varied. Before entering EH 157, students are required to have successfully completed a first semester composition course. Additionally, many students have also taken a second semester of transfer composition. Some students have also completed an introductory speech course. Others have taken a course in business communication. At the other extreme are the students who struggled through EH 151-51, a six-contact-hour, three-credit-hour composition course for students with writing difficulty.

Thus, the course described here has been specifically designed to allow students maximum freedom to work at their own levels without stifling the students with better skills or overwhelming those with lesser skills. Because of the diversity of Writing needs of the student population, the course has also been arranged so that students may work on many different types of writing.

The course meets for one-hundred and fifty minutes weekly for fifteen weeks, with individual sections meeting once, twice, or three times weekly. Roughly one-third of this time is devoted to lecture, discussion, and demonstration, with the remainder being spent in laboratory sessions. During these laboratories students prepare written and oral presentations with assistance from the instructor and occasionally from colleagues.

Each year that the course has been offered, the ratio of lecture to laboratory time has decreased with students receiving proportionally more individual assistance. Lectures are now limited to only those aspects of the course content that have proved to be bothersome to the majority of students. Otherwise, students can use the required textbook, supplementary texts furnished by the instructor, any model pieces of writing furnished by the instructor and often by students themselves. Then individual difficulties can be handled during laboratory sessions. Extensive use is made of models. Many students feel the need to visualize a particular writing assignment. Thus showing them several models often seems to

help more than further explanation would. Several models of each type are gathered from the text, other texts, the instructor, or other students. When sufficient ready-made models are not available, hypothetical models are constructed. Students then do not need to rely on one model, which probably would not fit their material very closely anyway. Even so the instructor must constantly help students to use models as just that--models showing how someone else has handled a particular writing situation--not as rigid structures into which a student must force his material.

Each student is expected to complete six units of work: general skills, technical letters, formal reports, informal reports, illustrations, and oral reports. The exact number of assignments varies considerably, with a norm of twenty. Many assignments can be completed in a few minutes each, but others such as the formal report and preparation of an individual oral presentation require many hours, both in class and out of class.

All assignments are submitted for instructor evaluation, but may be revised if a student is dissatisfied with his grade. Grading is subjective, but the allowance for revision permits a rather demanding standard. To be given an "A" or even a "B+", a piece of work must be useable. It should be effective enough that it could actually be submitted or mailed if done on the job. Revision is naturally very common. Nearly all students revise some work, some students revise nearly all work, and a few students revise some pieces several times. A few, of course, do excellent work and need do very little revisions; a few others are satisfied with mediocre marks and revise nothing.

Evaluation of a given piece of work is made on a combination of factors but no specific formula is used. Rather each paper is read with the question in mind, "How effective would this be if it were actually used?" Structure and substance are both important, with mechanics strictly a negative factor. In fact, little structured class time is devoted to usage, spelling or punctuation.

Students are, of course, helped with these matters during laboratory sessions. They are also given further assistance outside of class and are furnished handbooks and other materials to work with on their own.

The term begins with two introductory lectures preceding the unit on general skills. In addition to the standard course overview, these two lectures present the four qualities of effective writing that are stressed throughout the course: reader adaptation, level of technicality, clarity, and conciseness. Throughout the term, students are conditioned to the belief that "The reader is king; give him what he wants." Acceptance of this belief entails far more than does the traditional notion of reader analysis. Students are shown that the people for whom they will be doing much of their writing after graduation often violate what composition and technical writing instructors call the "principles of good writing." Techniques for which a student is praised in college might well bring him harsh criticism in business and industry. So students are warned to always temper their notion of effective writing by considering the demands of their specific positions. A corollary to this somewhat cynical view is the belief that there is probably not any one "best way" to do any specific type of technical communication. Organizations often like to do things in their own ways, and the student is so advised.

A more conventional view of reader analysis is presented in the statement "always pick the appropriate level of technicality." Students are shown how almost any piece of communication can be presented at various levels of technicality; then they are shown how to judge a potential reader's level. They are usually given an exercise of some sort requiring them to define several possible readers and to develop appropriate versions of a document for each. Then throughout the course they are regularly cautioned to always determine the appropriate level for anything they write.

The final two guiding principles, clarity and conciseness, are treated conventionally. Clarity is shown to be almost a sine qua non, with conciseness following directly. Traditional concepts such as objectivity, avoidance of jargon, and coherence are stressed. Perhaps the only unusual aspect of this part of the course is that slightly less stress is placed on total objectivity and on absolute conciseness than is often done. Students are encouraged to write clearly, effectively, and concisely without necessarily removing all of the "blood" from their prose.

Six assignments are suggested in this general skills unit:

1. definitions - one extended and two working
2. process analysis
3. set of instructions
4. description of a tool or a piece of apparatus
5. informational abstract (summary)
6. descriptive abstract (abstract) on the same subject.

This is followed by a technical-letter unit. Two lectures precede the laboratory sessions. First, some basic philosophical notions of letter writing are introduced. Tone is especially emphasized. Next, an entire fifty-minute period (often more) is spent discussing and exemplifying the art of résumé writing. Students are guaranteed that they will at least get their money's worth from their tuition fees if they develop a first-rate résumé, then file it for future updating and use. Four specific assignments are then made:

1. résumé with letter of application
2. letter of inquiry
3. claim letter
4. response to claim.

The most complex assignment of the course is next introduced: the formal report. Although the assignment is termed "formal report" and many students write conventional reports, students are really required only to do some sort of major technical writing project. Whenever possible students do projects related to their jobs or to other courses. In fact, arrangements with several technical-occupational instructors permit students to use projects for both Technical Communication and one of their major courses. Several occupational programs now require all student reports to be done using the format and approach taught in Technical Communication. Three, and sometimes four, fifty-minute periods are spent discussing and exemplifying formal reports. Various types of reports are presented, formats are discussed, and tones and points of view are illustrated. Many previous student reports are then shown and discussed. The projects are generally due one week before the end of the term. Most of the work is done outside of class, but students are encouraged to discuss their work during any laboratory period during the remainder of the term. These projects may, like all other assignments, be revised, but they must be handed in at least a week before the deadline to allow time for the extra evaluation.

This generally brings a class to midterm, the second half then beginning with a brief unit on illustration. Prior to actually starting the unit, most students feel quite threatened by the knowledge that they are going to be asked to actually construct illustrations, to actually draw. However, by the time the unit has been completed, these same students usually agree that it is the easiest of the term, and many find it to be the most enjoyable. Two lecture-demonstration periods focus on when to and when not to use illustrations, on how to fit them into a text, and on which type to use where. Then students are asked to construct the following six:

1. table (matrix of at least twenty-four)
2. line graph
3. bar graph
4. circle graph
5. organizational chart
6. flow chart

Finally, students are shown how these six illustrations and simple line drawings can be used to convey almost anything they are likely to need to convey. Of course, students with more highly developed drawing skills are shown how to use their work effectively in technical texts.

Illustrations are followed by informal reports, usually the longest unit of the course. Two introductory lectures are given; then a minimum of five informal reports are developed in laboratory sessions:

1. progress report
2. status report
3. trouble report
4. travel report
5. proposal

The progress report and proposal are the only assignments given in which a student has no choice of subject. He is allowed to select his own subject, usually from his major field, for all other assignments. The progress report is written directly to the instructor, informing him of the student's progress in completing the major report assignment. The proposal, the final written assignment of the term, is also written directly to the instructor. Each student must propose to make a 10-12 minute informative presentation to the class on a subject of his choice.

Class time is also devoted to the discussion of form completion, preparation, and utilization. Students often bring in forms from their work and

evaluate or revise them during laboratory periods. Some students even develop forms for their status, trouble, or travel reports.

The final several weeks of the term are spent working on oral reporting. Two fifty minute lectures are given: one surveys the oral communication needs of technical people and examines some typical group speaking situations; the second focuses on giving individual presentations before groups. If time permits, students are then asked to participate in some sort of group speaking simulation such as an interview or a committee meeting. In larger classes, which naturally require more time for individual presentations, this group work must often be omitted. The last activity in the course is the final oral presentation. Each student gives the presentation he has proposed several days before.

The detailed schedule of suggested assignments just discussed is suggestive, not restrictive. In fact, few students complete every assignment exactly as listed. Students are encouraged and helped to develop their own assignments. Only the proposal and progress report cannot be substituted for, although most students are encouraged to do the general skills unit. Anytime a student wishes to make a substitution or to do some unscheduled work, he merely informs the instructor, and permission is almost automatic. In this way, students who already have writing responsibilities at work and those who know of specific writing needs in their prospective professions may make the course very nearly "on the job training."

Most students do submit a packet of letters, a set of illustrations, some informal reports, and a major project. However, students regularly submit some type of letter not assigned instead of one of those listed. Some students wish to make several types of tables or flow charts and are thus excused from some other illustration. But the greatest variety of assignments occurs in the informal-report unit. A typical laboratory period may find students working

on insurance reports, lab analysis reports, operational procedures, job descriptions and union bylaws, with only two or three actually working on the assigned travel report.

Students who do not yet know the writing demands of their chosen field are often helped by other students in the same major field or by major area instructors.

Even those students who do none of the specialized assignments need not feel the course to be irrelevant. The scheduled assignments all ask the student to write about his major field. So he will be defining terms from his major field, preparing a résumé that he may well use in seeking his first job, and reporting hypothetical accidents he hopes will never occur.

The student who is a complete novice in his field, who might be just now taking his first course in his major, or who has not yet decided on a major is the most difficult to help. Occasionally, we are unable to find any subject related to a student's major and he must write about something else. In such cases we usually locate hobbies, jobs, or unrelated college classes that will furnish suitable subjects.

Ideally, to benefit most from the course, a student should have at least an introductory-level understanding of his major area, because even if he enjoys writing about hobbies, jobs or other college courses he will not get quite the same kind of training that a classmate who had already completed two or three courses in his major field would.

Fortunately as instructors teach the course for a few semesters they begin learning much about both subjects and special writing needs within major fields. This, coupled with the previously mentioned suggestions from subject-area faculty and from other students, alleviates the problem considerably. Area employers are also a good source of information. Helping further has been the suggestion made

to counselors, instructors, and prospective students that taking the course be deferred until a student has taken at least the introductory courses in his major.

A related problem in teaching the course is the enormous amount of supplementary material and supplementary knowledge needed by the instructor. The first few times that a course is taught this way, the instructor may well feel helpless when asked by students to help them improve their ability to write things that he has never written himself and possibly has not even heard of. But each of the sources mentioned above will help, and his own experience will soon do the rest. After a year or two he will have accumulated a large file of material, and he will have seen most special writing types that he is likely to see. Most importantly, he will have come to realize that basics such as clarity, conciseness, and reader adaptation offer a sound basis for developing criteria to criticize almost any kind of technical writing.

One disadvantage of this approach can never be totally overcome: it demands a great deal of the instructor's time. Certainly he will gradually need less time for accumulating materials and learning himself, but simply evaluating some twenty assignments from each student, many of them submitted several times is going to require a great deal of time. There are two changes recently made in methodology that do help a bit. Increasing laboratory time in class lets the instructor do more of his criticism then, rather than after the assignment is submitted. This is especially helpful in getting students to do high quality work on first submission, thus saving revision time for the student and evaluating time for the instructor. A second helpful change is to require students to work on assignments in laboratory sessions if they want to have the privilege of revising. This has sharply decreased the incidence of mediocre first submissions, done with the knowledge that the instructor would point out all of the weakness,

which could then be easily revised. It has also cut down on late assignments and has improved attendance.

Although the course is obviously very demanding of students, their response has been quite favorable. Formal student evaluations are consistently higher than those for composition courses. Informally, comments such as, "the most useful English course I've ever had," are becoming common.

Part III

This part of the monograph consists of the reactions of Mr. David McLean of Martin-Marietta Aerospace and Mr. Roger Easom and Dr. Fred MacIntosh to the three papers presented in Part II.

We felt it would be profitable to have the reaction of professional technical writers and educators to the instructional approaches which were to be detailed. We felt that as the neophyte technical writing instructor read this monograph his impressions would be given perspective by the remarks from people of substantial stature in the field.

The final paper in this part is a concluding statement by Ms. Ruth Flemming who served as the recorder for these sessions. Ms. Flemming's conclusion will serve as a final evaluative statement in addition to the traditional function of a wrap-up.

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CRITIQUE OF METHODS OF TEACHING TECHNICAL WRITING
(Transcribed and Edited by George M. Fouts)

What we have had here is a series of beautifully organized, sequential programs with all the speakers giving us a host of really down-to-earth, practical suggestions to take home. Now I have never before heard an academic meeting that did that. Most of the time, I went out by the same door that I came in. Thus we owe the organizers of this meeting, particularly Mr. McCalliard, the Chairman, a word of thanks. Also, I think we owe Mr. McLean thanks because when he told us about the reality of work in industry, my experience tells me that he had it absolutely right. He said the right things, in the right sequence, with the right emphasis; and looking back over the session, I couldn't see a thing that he missed. As a man who represents one of the most respected presentation groups in the aerospace field, he really gave us the truth.

What I want to do in order to critique these presentations on the teaching of technical writing is to divide my comments into three categories. Speaking from my own experience as a technical writing teacher, I want first to catalogue the things that I heard in these papers that I liked, and that I think are right. Then, I have a few things that I might disagree with. And, finally, I have a few things that I didn't hear mentioned that I feel deserve attention.

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Our speakers emphasized several points about the teaching of technical writing that I would strongly endorse:

-The necessity of related knowledge is essential; just knowing English and language is not enough. And knowing psychology and sociology and aesthetics and art and literature, which are the usual supplements to an English major, is not enough.

-A second point I liked was the emphasis on editing first for content, second for audience, third for organization, and last for style. Though I run the risk of seeming hopelessly traditional, I also like the emphasis on the fact that the mechanics must be right, the grammar must be right, and the commas ought to be in fairly good placement.

-I liked Mr. McLean's insistence upon the personal qualities that a good technical writer/editor has to have: that he must have flexibility, good sense, judgement, self-reliance. We all have to learn to walk alone.

-This notion of meeting deadlines is a salutary one. That's the way the world works. Any notion we give our students that they don't have to do this kind of thing is, to me, a false kind of teaching. To encourage students' self-deceptive excuses for not having work done on time or for not having it done well is almost forfeiture of our requirement for moral guidance of students.

-Students should draw their subjects from their own major fields, and the classroom demands should parallel as closely as possible those of the working world.

-In teaching and in evaluating papers, teachers should set their priorities in this order of importance: audience, content, organization, logic, sentences, words, and mechanics.

-The technical writing course should present the student with many problems of varying length and complexity, probably with emphasis on a variety of shorter things.

-Near the end of the course a major project may be much more useful than a final, formal report.

-Occasional options among assignments may be a very good motivational tool.

-The textbook should be viewed as a resource rather than something to be mastered. Prescriptions and proscriptions really do not have a place of significance in effective, rhetorically-conceived, communication.

-Evaluating early papers, but not grading them, both encourages and helps the student. It may give him the self-confidence to try some things that he might not ordinarily try.

-Conference evaluation of papers probably does produce better results than exhaustive outside written comment by the instructor.

-There should be assignments in graphic illustration, about which I will have more to say later,

-Oral reports and team oral communication problems are highly valuable, and I would supplement this notion by suggesting that the context of these oral situations be the large conference room rather than that of the formal, public speaking, large audience situation. This is the more typical speaking situation of the industrial world.

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On the other hand, I have serious reservations about these things:

-I seriously question the wisdom of putting students of so many diverse majors into a single section of technical writing. I would suggest separate sections and separate course titles (which, by the way, will please all concerned)--a section for business oriented students, a section for the people in health occupations, and one for the technology and trades groups. Then the students have common concerns and they have some competence when they come to evaluate one another's papers in terms of content as well in terms of the purely compositional matters.

-I think that all students writing on the same case problem is good early in the course, but if you have students from many curricula all in one section the fabricated case situation, regardless of how realistic you try to make it for some, will not be realistic for others. Consequently, they will feel that they are going through an artificial sequence.

-On the discussion of models, I would tend to disagree because my experience tells me that models become crutches. I would prefer some preliminary discussion of criteria before students start--that is, what do you mean by a "good process description," or what do you mean by an "effective graphic"? Then I like to follow that discussion of criteria by a very rapid exposure to a great many different models. Ultimately, writing has to be a matter of calculated choice followed by conscious art.

-I sense some tendency to treat the technical writing course as remediation for basics, as emphasis upon elimination of faults instead of prime attention to effective presentation. It is sort of an Emily Post approach to manners ("Don't do this.") as opposed to the notion of true courtesy.

-In response to the issue of grading, I have never found numerical values and formulas for grading anything but an endless chain of petty nit-picking on both sides. And frankly, I couldn't do it. Frequently, strengths more than compensate for weaknesses. Moreover, numerical equivalents for rhetorical matters just seem impossible to me.

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Finally, I would have liked to have heard more discussion of these things:

-There is a need for a clear progression of assignments throughout the course (e.g., simple to complex, factual to conceptual, short to long) rather than the impression of many assignments in a more or less miscellaneous mix.

-There needs to be some provision for some tightly controlled pressure-writing ("You have twenty minutes to do this; get busy, and see what you can produce.") This is a frequent reality in the world of work.

-More attention needs to be given to the tremendous variety of visual aids to support all presentations--when a chart is good, when a slide is good, when a filmstrip is good, etc.

-A great deal more attention, as I mentioned above, needs to be given to conceptual graphics, not just illustrative. So many times a lead idea, or a major emphasis, or the integral nature of the logic with which we are presenting things can be put so much more clearly, effectively, and concisely by graphics than by language. The whole question of holding down the language and increasing the graphics in technical writing needs much examination. Particularly in these days of information explosion when time is of the essence, the general trend in technical writing is decidedly towards more graphics and less language. But, when that happens, the language becomes increasingly crucial. The background, the values, the implications, the relative priorities all get stated in the language in a very precarious way. In truth, the less language you have to write, the more difficult it is to do it well.

-Last I would mention the great need for the technical writing teacher to actually experience industrial conditions. A summer job, even at the most menial level in industry, would give the instructor a better idea of the communication demands outside of a purely academic world. I would add, however, that my experience has been that the experienced, successful teacher of any kind of composition already has about 90% of the habits of mind, the self-discipline, and the language skills necessary to be a good technical writer or good technical editor, provided that person rounds out his experience by the experience of the real world of technical communication.

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CRITIQUE OF METHODS OF TEACHING TECHNICAL WRITING

The methods and approaches detailed by Ron Carter, Ann Norman, and David Fear offer teachers of technical writing three very soundly structured programs aimed at preparing students to meet the communication needs of various technical fields. Their approaches can be described generally as flexible, student-centered, job-oriented, humane, and pragmatic.

The panelists' emphasis of the pragmatic approach in teaching technical writing deserves careful consideration, especially David Fear's provision for allowing working students the option of improving their own technical communication written on the job. Certainly, no simulated communication situation in the classroom can yield the significant results of "hands-on" experience, yet it may be both impossible and impractical for the classroom teacher to incorporate the real experience of on-the-job writing in the classroom. Nevertheless, the technical writing teacher must try as David Fear has demonstrated to unite the actual experience and the simulated experience whenever possible.

Each panelist described the procedure that can be followed to design and implement a technical writing program that offers job relevancy. As the respondents testified, interviews of key personnel from business and industry and of technology instructors and advisors will provide valuable input for the teacher of technical writing who in many cases might not have had work experience in a technical field. In fact, the teacher may not be able to offer students a very desirable program of training unless he maintains this strategic channel of communication with the world of work. And, as Ann Norman added, the technical writing teacher must not neglect the student himself as

a source for determining what should be brought into the classroom to provide for him the type of experience he desires and can be convinced he needs. Although the educator may meet occasional opposition in his prying into the communication requirements of business and industry, he will probably have the overwhelming cooperation and support of those he contacts, for they want to help him who in turn will help them by providing their prospective employees an opportunity to learn pertinent skills.

There is, however, some basis for argument against programs that are in every respect practical or job-related. When the teacher limits his students to activities covering the basic forms, the basic types of exposition, and the basic kinds of letters, is he not restricting their range of experience? For some students, their technical writing course will be their last chance to receive formal training in technical communication skills. One consequence of making technical writing courses exclusively job-related is that only those communication responsibilities that students will face upon initial employment will be considered. What will students turned employees need after one year and after five years, and so on? Thus, the classroom teacher must be concerned with his students' success on the job as it reflects his contribution to their training. Likewise, he should consider activities that will broaden his students' scope of experience and enlarge their vision of the world that they are preparing to function in as productive citizens. For this reason, Ann must be praised for her use of literature, films, tapes, and other materials to give students a touch of the humanities. Why do students have to swallow a steady diet of technical writing when they are already being gorged on technical material in their technologies? Can they not learn some of the techniques of effective writing through reading and analyzing pieces of literature?

Including the long formal report in a technical writing program must also be considered. Of the three panelists, David Fear stands alone by structuring the formal report as an individual requirement in his course. Ron Carter handles the formal report as a group project; Ann Norman omits it.

Undeniably, experience has proven to most instructors that teaching the long formal report is painful, occasionally traumatic, and generally discouraging, not to speak of the hellish tortures caused the students. Furthermore, surveys of business and industry's communication requirements for the technician, as Ron Carter explained, indicate that the long formal report is not a practical form. Then why should the teacher include the formal report? Perhaps his students need to experience this type of comprehensive project, involving library research, laboratory research or all of these. Granted, technical writing students may never have to write a long formal report after they leave the classroom; nevertheless, by offering them this activity the teacher may be able to accomplish a number of worthwhile objectives, all perhaps more important than the actual writing of a long formal report. For example, students may expand their knowledge of their technology. Oh, but that is not the English teacher's domain! But, is it not possible that the English teacher can assist students in discovering ways of obtaining information needed to enhance their professional development? Or, as students move through the scientific process in a lab experiment, is it not possible that the teacher can advise them in recording and organizing their data? Although they may never have to document another report in their lives, will it not be helpful for them to understand the significance of data collection (gathering information) and careful documentation, as they continue to read professional journals? With the long formal report, does the technical

writing instructor not give students an opportunity to exercise and demonstrate their ability to handle virtually every technical writing skill? In short, writing the formal report enables students to work on a higher level of cognition, because it offers more than the acquisition and application of knowledge as it moves into the realm of transformation, involving analysis and synthesis. Including the long formal report in the technical writing course may be unrealistic; nonetheless, it deserves serious consideration because of both immediate and long-range benefits to students.

Technical writing courses are manageable, even with the long formal report. In the curriculum at State Technical Institute at Memphis, it is possible for students in Technical Writing to be enrolled at the same time in a Special Problem course in their technology, whose instructors (engineers), as a matter of fact, do require them to write a formal report. And even those students who elect to take Technical Writing **before** pursuing the Special Problems course can prepare in advance much of what they will need for their report on the Special Problems project. Most students have indicated that they are pleased with this type of coordination and cooperation between the related studies and the technologies. To demonstrate students' interest in writing a formal report, let me cite a personal case. Last fall quarter in an attempt to individualize my approach in Technical Writing and to aim for more job-related activities, I presented a class of twenty-four Technical Writing students the option of pursuing actual technical writing projects (e.g., writing laboratory reports, scripts for videotaped demonstrations, guidesheets for using technical equipment, and so on) for their technology instructor or advisor in lieu of the long formal report. Only five out of twenty-four chose to pursue the special writing projects in lieu of the long report. Most of those who chose to write the long report wanted to coordinate their work on the long report with their special problems project report. The most pleasing result, however, of this experimental

approach was that griping about writing a long report ceased, for those who would have been bored by the assignment were able to tackle an alternate task. And two of the five pursuing the actual writing projects for their technical instructors became very enthusiastic writers when reports, factsheets, and other materials were accepted and praised by their instructors.

Thus, I recommend the inclusion of the formal report, but I also suggest that alternatives and options be provided for students. Students seem to respond favorably to flexible approaches as emphasized by Ron Carter, Ann Norman, and David Fear.

In summary, I commend these instructors for their well-structured, but eclectic approaches. They have demonstrated that the technical writing teacher must have the students' interests and needs at heart.

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CRITIQUE OF METHODS OF TEACHING TECHNICAL WRITING

INTRODUCTION

From the viewpoint of what industry demands of the technical writer, I was favorably impressed with the way technical writing is being taught by Norman, Fear, and Carter. The correct material is being taught with about the right emphasis in the various areas.

PARAMETERS OF COMPARISON

One distinction must be made clear, however, so the remarks to follow can be considered in the proper context. The courses being taught by Fear and Carter are Technical Writing courses while the course taught by Norman is a Technical English course. Technical Writing and Technical English are clearly different courses: Technical Writing concentrates on content, and Technical English concentrates on the mechanics of writing. Both courses are good and obviously necessary for different applications, but we must remember that they are different.

EMPHASIS

Our speakers made it clear that heavy emphasis is placed on actual writing assignments rather than on lectures and reading assignments. This, is obviously essential since writing is difficult for most people and writing competence can only be achieved by practice.

PLANNING

More emphasis should be placed on planning, or thinking, before students begin to write. At Martin Marietta Aerospace, we make our engineers identify

key messages and prepare thematic outlines before they begin to write material for proposals. This forces them to think about and plan what they want to say before they actually begin to write. It also provides an opportunity for management to review their material before it is written and implement any redirection that is necessary. If the planning and thematic outlining is done thoroughly and properly, the actual writing becomes easy because the writer knows knows what to write.

CONTENT

The basic emphasis in the technical writing courses was on content rather than on mechanics. Although students must be aware of the mechanics of writing, and know how to apply the basic rules, they must learn to develop content. A mechanically correct paper that presents no message is much worse than a grammatically incorrect paper with a message.

REAL WORLD ASSIGNMENTS

Each of the speakers made a strong point of having class assignments parallel real world assignments. I fully endorse this approach, not only from the standpoint of students becoming familiar with writing assignments they will have in the working world, but from the standpoint of motivation. The relevance of classwork must have an obvious effect on student interest and performance.

GRAPHICS

Graphics play a significant role in technical writing and I was pleased to hear that basic methods of graphic illustration are included in the technical writing courses. The preparation of simple bar charts and graphs,

and the effective use of graphic illustrations, are essential for technical writing students.

ORAL PRESENTATIONS

The inclusion of an oral presentations segment compliments and enforces the concepts of content and organization taught in the writing segments since these basic concepts are the same for both written and oral communications. The stress experienced by a student in making an oral presentation closely parallels the stress he will experience in the work environment. The use of video tape for practice and development can be a valuable teaching aid.

CRITIQUING

Several critiquing methods were presented that impressed me as being very worthwhile teaching methods. By only identifying that mechanical errors exist in certain paragraphs or pages rather than pointing out the specific errors certainly must be more beneficial in helping the student avoid making the same mistake later. The approach of having students review each others' papers also is bound to help students improve their own writing skills.

I would like to see these methods applied to content critique and analysis. By using the thematic approach, instructors could review the basic content and organization before papers are actually written. I believe this would make it easier for students to learn the basics of content, organization, and logic. This method could be extended to have students critique thematic outlines of other students.

EVALUATION

I particularly want to encourage instructors to be demanding in terms of grades and deadlines for turning in papers. Industry is certainly

demanding, and if students are permitted to procrastinate, they will have a difficult time making the transition from student to employee. Grades are significant because an employee is constantly evaluated in terms of whether a raise or promotion is deserved. Periodic performance appraisals include ratings for written and oral communications skills as well as job performance, and students should be used to being critically graded.

REFERENCES

I am a firm believer that students should be encouraged, not just permitted, to use basic reference material such as dictionaries and grammar handbooks in class. Since employees are permitted to use these materials, students should be taught to use them effectively. We do not expect our writers to work without these basic tools anymore than we expect our engineers to work without slide rules and calculators.

SUMMARY

In summary, the major thrust of the technical writing courses is in the right direction and at the correct level. The community college is providing a practical and valuable course that is directly applicable to the work environment.

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Greenville, North Carolina

JOB-ORIENTED AND STUDENT-CENTERED: TEACHING TECHNICAL WRITING, 1974

The technical writing session at 1974 SCETC has been repeatedly described as both successful and innovative. Too often, however, innovations are not based upon sound and coherent educational philosophies. They represent breaks with tradition only for the sake of being new or different. But a close look at the design of the overall design of the SCETC Technical Writing Session and at the papers directed to answer the question "How do I teach technical writing?" reveals adherence to a well-respected approach to course design. First, the basic rationale or philosophy for the course is established, here in Roy McGalliard's paper. Next, the needs for which the course is designed are considered. David McLean's paper points out general and specific needs for students who will be writing in an industrial or technological environment. Essentially from these needs are developed the course objectives and learning activities, covered in detail here by the papers of Ron Carter, Ann Norman, and David Fear. Evaluation of how well the objectives meet the needs, are consistent with the philosophy, and are met by the learning activities is the final stage of the process. In the design of the Technical Writing Session, Dr. Fred MacIntosh, Roger Easom, and David McLean performed the evaluation function. Revision, a key component in this system of curriculum design, is left to the individual here, who can adapt what he has heard

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or read to his own philosophy and to the needs of his own students. Not only did the session *in toto* follow this tested system of course planning and design, but the three papers, by Ron Carter, Ann Norman, and David Fear, responding to the central question also follows this basic outline. A summary of central points growing out of the entire session should thus logically be organized in the same fashion, beginning with a discussion of philosophy and needs, moving to consideration of course objectives and learning activities, and finally to an examination of evaluation and revision.

As noted, the program "How Do You Teach Technical Writing?" developed as a reaction to Dr. Fred H. MacIntosh's paper "Teaching Writing for the World's Work" (see appendix). In that paper, Dr. MacIntosh establishes several positions common to all of the approaches to technical writing presented. A basic premise for teachers of technical writing is that this writing is just as valuable as the literary criticism in which they have been trained, and that, in fact, society at large places more value on the practical skills of technical writing than on the forms of more aesthetic bent. Once this premise is established, several practical approaches develop from the philosophy of the worthiness of the technical writing craft. Rather than treating technical writing as a poor relation of the more "literary" forms, attention should be paid to the modification of methods used to teach other composition forms to adapt these methods to technical writing situations and needs. These needs point outward rather than inward. Clear, logical,

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concise expression rather than creative, searching, self-expression is the goal of the technical writer. To determine the skills needed by their students, instructors must go to technical texts, to industry, to technical instructors. Assignments and goals should be designed to develop the required skills. With needs, goals, skills, and activities thus based on an analysis of the working world in which the student will be communicating, evaluation of student work should also emphasize the values of the working world. Deadlines must be met and papers must be of a quality usable on the job to receive high grades. This, then, is essentially the philosophy of teaching writing for the world's work. The value of such writing is accepted a priori and the course is designed to meet the needs of those who will be "consumers" of the technical writing skills students should develop in such a course.

In his philosophical statement, Roy McGalliard reiterates that the relevance of the task of teaching technical writing (and, in fact, the importance of that task) are inherent in the very words "teaching writing for the world's work." Mr. McGalliard warns that there are no surefire formulas or pat answers to questions about how to teach technical writing. Instead, flexibility must be the watchword. However, flexibility need not be synonymous with a wishy-washy course nor with irresponsibility in course design or the establishment of clear course goals. It implies a tighter structure than the usual, with a willingness to employ different teaching techniques, to offer a variety of learning activities, in order to reach the same priority goals. Mr.

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McGalliard also emphasizes what is known in modern educational jargon as "accountability." If a flexible approach is used in a course the worth of which is accepted, how well are goals being met? Mr. McGalliard suggests that we must measure our success in long-range terms that extend beyond the classroom to transfer institutions and on into the world of business and industry. Only then can we determine whether or not the skills our students acquire are useful ones or ones that are quickly forgotten through lack of use.

Though every respondent to the question "How do I teach technical writing?" is an adherent of the pragmatic approach that prepares students for on-the-job writing experience, each one is as well a humanist, deeply concerned with the way his students feel about themselves and the courses that they take. A central, crucial point is evident here. Most teachers of technical writing in two-year colleges must cope with many students who have low self-concepts coupled with often weak verbal skills. These students are among the ones that they are expected to equip for communicative success in the working world, where standards of excellence must be met, and where failure can mean firing. As Mr. McGalliard notes, the world does have a punitive grading system. The flexibility in approach he advocates, however, is one of the means by which respondents to the question ensure that their students can gain confidence by succeeding in the classroom while working to build the skills demanded on the job. Requirements can demand excellence without unduly intimidating the student. The policy of evaluating early work

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and suggesting revisions, but "grading" only work done later in the term is one method that is effective. Certainly the pressure that is part of writing in the working world should not be overlooked in a classroom that attempts, to some extent, to simulate that world, but students should understand the reasons for the exertion of that pressure. Despite the desire of technical writing teachers that their classrooms parallel the working world, it should not be forgotten that they are classrooms. The atmosphere should encourage the idea that the class is a learning situation, a situation where errors are made and corrected, a preparation for the pressures of the working world, not an exact recreation and duplication of them.

The needs just addressed are the needs of the whole person, the needs of the student as an individual human being. Sensitive teachers will certainly look to these needs, but they will also design their technical writing courses around specific needs of business and industry, such as those outlined by David McLean. Mr. McLean enumerates the following primary job requirements for a writer/editor in his corporation: be able to determine objectives for an assignment, analyze the audience, and determine any special assignment requirements, such as length, format, or content; be able to conduct a logical analysis of the material on which his report or description is to be based; be able to reorganize, rewrite, and secure additional input; be able to edit in detail for grammar, punctuation, and spelling; and be able to write a succinct and meaningful summary of the report. Though demonstrated writing skills are obviously a necessity for success,

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Mr. McLean lists the following among skills necessary to meet requirements: common sense; an ability to see the overall significance of problems; an ability to compromise; an ability to work under pressure and meet deadlines; a capacity to work alone and as a team member; and a proficiency in human relations. If, then, we as teachers of technical writing seek to meet the demands of the working world as well as the varied needs of our students, the classroom atmosphere must be one that encourages the development of positive attitudes about oneself, one's co-workers or classmates, and one's job or assignment, as well as one that leads toward improved writing skills.

Though Ron Carter, Ann Norman, and David Fear teach somewhat different technical writing courses at widely disparate locations, there are several elements common to their courses. These common elements, interestingly enough, cover the most crucial points established by Roy McGalliard and David McLean. Each of the three reiterates the concept that there is no magic key or secret formula for teaching technical writing. Perhaps a corollary to this concept is their idea (and Mr. McGalliard's) that flexibility must be built into a sound tech writing course. Each also believes in the pragmatic approach of having the classroom parallel the working world. Each teacher focuses on individual student needs and problems. Each employs some group activities as well as individual assignments. Each brings some form of structured oral communication experience into the technical writing classroom. Each employs frequent writing practice on the 'learn by doing' premise. Texts are generally used as resource and

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reference materials. Each instructor considers structure and content priority matters in evaluation, regarding grammar, spelling, and punctuation as areas that should be correct, but that are largely a matter of proofreading. Each worries about student evaluation and, though deadlines must be met, offers opportunities for revision. Certainly there are other basic approaches shared by these teachers, but these parallels reveal a concern for the relevancy and usefulness of assignments to the student and to the working world and a concern for self-direction and team effort on the part of the student.

Many methods are used in the context of these approaches, and the specific forms of writing taught in each class vary. However, certain general methods can be outlined. The "working world" approach begins with the determination by the instructor of writing tasks likely to occur on the job. This information can be obtained by reading texts, asking colleagues in technical fields, or consulting professionals in business or industry. Once a range of possible assignments is established, students are asked to produce writing that could be required of them on the job, sometimes in a situational or problematical context. In general, many shorter assignments, such as descriptions, letters, reports, and proposals are required as well as some sort of major writing project. Students are required to follow rules for format, mechanics, and deadlines just as these rules would be followed on the job. Individual problems with mechanics, organization, or style are handled through conferences with the instructor, peer consultation, programmed texts, or work in the learning laboratory.

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Insofar as possible, student assignments are adapted to individual student needs because the classes are usually heterogeneous with regard to fields of interest. Aside from the emphasis on the individual, efforts are made through group reports, papers, or projects to involve the student in a team effort. Often near the end of the term, a written group or individual report is presented to the class to develop oral skills.

Mr. Carter, Ms. Norman, and Mr. Fear employ to a greater or lesser extent some variation of the workshop approach, with more class time spent with students writing and less spent with the instructor lecturing. The students are thus learning by doing. And rules are reduced to the minimum the instructor deems necessary. Don Carter sets up three rules: put the essential information first; organize the paper in manageable blocks; and avoid jargon. David Fear emphasizes clarity, conciseness, and audience analysis (the reader is king). Once basic points are established the rules develop from the writing and serve as guidelines rather than constraints. Models are employed by the instructors, but they are generally studied briefly to provide suggestions for the treatment of a technical writing problem. Then the student develops his own pattern for another problem. Models are not used as rigid guides.

Evaluation of student work adheres to the philosophy that structure and content are priority concerns in technical writing. Mechanical problems are usually treated through some form of individualized instruction. To train students to be their own proofreaders or editors, specific mechanical errors may not be

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indicated. The instructor may say, "There are three spelling errors and four errors in punctuation in this letter. Find them and correct them." Actual grading may be done on a point system used throughout the term, such as that devised by Ann Norman, or may concentrate on progress towards certain goals, with only several final papers receiving "grades" per se. David Fear evaluates on the basis of effectiveness. Ron Carter evaluates on the basis of progress toward the two main objectives for his class: learning to write a clear technical report and learning to act as editor and proofreader. Evaluating rather than grading early papers would seem to ease the trauma of a writing class for students with weak verbal skills. Problem areas can be worked on before any paper is graded, thus building student confidence and creating a good learning situation without jeopardizing the desired parallels to assignments in the working world. Though each of the three instructors expresses some concern with the subjectivity of evaluating writing, Mr. Carter correctly notes that this same subjectivity is brought to bear in the working world when one must please a superior. All instructors make their expectations clear and allow revisions to improve work.

As Roger Esson notes, the teaching methods outlined are "student-centered, job-oriented, humane, and pragmatic." They are also consistent with the philosophy, rationale, and needs postulated in the papers of Dr. Fred MacIntosh, Roy McGelliard, and David McLean. Naturally, then, the evaluation session conducted by Mr. Esson, Dr. MacIntosh, and Mr. McLean consists

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of general praise for the kind of instruction epitomized in the approaches of Mr. Carter, Ms. Norman, and Mr. Pear. The priorities placed on audience analysis, organization, and style, with an insistence that mechanics be correct as well, were praised. Instructor emphasis on personal qualities of flexibility, good sense, judgement, and self-reliance also was lauded, reiterating the idea that proper attitude development must be a crucial part of the technical writing course if it is truly to prepare students to communicate successfully in the world of work. Use of options in assignments, of the text as a reference, of conference evaluation, of oral and team projects, of emphasis on graphics, and of variations in the length and complexity of assignments were praised. The laboratory approach and the insistence upon meeting deadlines and high standards were especially approved by Mr. McLean. The list of good points could go on, but several cautions suggested by the evaluators could make for even tighter consistency with the basic philosophy and needs of the technical writing course.

The suggestion by Dr. MacIntosh that students be grouped for this course in general categories according to majors is one that would be heartily welcomed by anyone who has ever had to cope with a class in which there were students from six to eight basically unrelated curricula. Otherwise, as he suggests, case problems can come to be viewed as an artificial sequence of activities because of their generality. Writing should be based primarily upon criteria rather than models, and the course should not be regarded as remediation for basics. Some writing forms

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other than technical ones can advantageously be included not only to point out characteristics of powerful writing, but to aid in the general personal development of the student. An increased emphasis on graphics and visuals in the working world should lead to a parallel emphasis in the classroom. Additionally, pressure writing situations should be provided for, use of reference material encouraged, and planning or thinking before writing emphasized. The best move that a teacher of technical writing can make is to experience the industrial or business writing environment through a summer job. This first-hand experience provides new insight into the needs of the students and of the working world.

Good teachers feel with Ron Carter that, no matter what they do, there is always something they would do differently—a new technique in grading, a field trip, a lecture session. Finding suitable methods of instruction and evaluation is essential, but these methods must be established within a sound philosophical approach to the course and the needs that it is designed to meet. Perhaps the most remarkable aspect of the 1974 SCETC Technical Writing Session is the amazing unity of the basic philosophical approach by the many different people who provided their expertise. All expressed concern with the practical preparation of students for the tasks they would be likely to encounter on the job. All expressed concern as well with the issue of student self-concept through their provisions of options in assignments, opportunities for revision, and flexibility in the evaluation process. The reason the described teaching methods work so well is because care

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is being shown not only for the technical writer of the future, but for the person of the present. As Mr. McLean noted, skills in cooperation, tactfulness, and self-motivation are crucial on the job, too. A technical writing course that provides sound learning activities to improve writing skills while developing attitudes necessary for the advancement of those skills is the best preparation for the working world that can be provided in the context of the English classroom.

APPENDIX

There are two appendices. The first is a paper which set the stage for the Jackson meetings and this monograph. The paper by Dr. Fred H. MacIntosh, "Teaching Writing for the World's Work," led us to these positions: teaching writing is necessary for the well-being of our students and our society and since teaching writing is a necessity it is therefore a dignified profession.

It was as a reaction to the MacIntosh paper that the conference program "How Do You Teach Technical Writing?" was planned. It goes without saying that Dr. MacIntosh had a strong hand in guiding our work as we put the program together. We therefore feel that the Appendix 1 must be "Teaching Writing For The World's Work," or the monograph will not be complete.

The second appendix is a partial vitae of all those who have contributed to the publication of this monograph and who made the program at SCETC (1974) a success.

APPENDIX I

TEACHING WRITING FOR THE WORLD'S WORK

by F. H. MacIntosh

(Delivered at the 1973 Southeastern Conference on English in the Two-Year College, Jacksonville, Florida, February 16, 1973.)

For most holders of advanced degrees in literature -- that's what they really are in most English departments -- the prospect of teaching technical, scientific, business, medical, or any career-oriented writing course is likely to produce disdain, defensiveness, uncertainty, escapism, revulsion, or outright panic. No wonder -- for most English teachers have shunned science, taken reading courses rather than writing courses, and often never had a college composition course. Or if they had one within the past ten years, it is likely to have emphasized personal writing, subjective writing, or writing about literature -- and even their writing in literature courses emphasized content more than composition. As teachers they have avoided teaching composition wherever possible, and usually know very little of the worlds of business, industry, technology, government, health, or defense. In general, they are largely innocents in the sorts of writing so vital to the world's work.

Before you shout me down as a Judas betraying our sacred tradition of literary studies as the summum bonum in an otherwise crass world, let me confess that the previous paragraph is a self-portrait -- not of the artist as a young man, but of a blind and arrogant professor. Several years ago, as a professor of English at Clemson with a doctorate in eighteenth century literature from Duke, I was smugly celebrating my escape from freshman composition and my freedom to teach

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nothing but literature -- until circumstance pushed me into teaching engineering writing, to which I had been snidely supercilious and loudly scornful. I protested that such work was for clods, certainly not for a Ph. D. capable of LITERARY CRITICISM and RESEARCH! But my dean, a wise man, firmly told me that the experience would be good for me, and I went sulking off to lick my vanity. Since I had been schooled in the older tradition that the really professional teacher does to the best of his ability whatever courses he is assigned, and that to do his own thing at public expense and deprivation of students is juvenile and parasitic, I calmed down and went to work to learn enough to teach the course. Gradually three points forced themselves upon me: (1) writing in their own fields, several students I had put down as dullards in freshman English turned out to be excellent writers for their own purposes; (2) the progress shown by the whole class of juniors and seniors pleased them and me; (3) I was heartened by the help offered by the engineering faculty when they saw how much their students' writing was improving their engineering reports and quizzes. In short, I found the course highly valuable, I learned to write more directly, and the teaching was as challenging as literature teaching. Good luck then brought me summer work as reports and proposal writer and editor in a large aerospace complex; that work led to my being recommended to my present position as director of UNC's advanced composition program (advanced expository writing, business writing, scientific writing); and for fourteen years I have thoroughly enjoyed and profited from summer and vacation work as writer, editor, proposals consultant, and teacher of mid-management writing courses in industry, government, reasearch centers, and military bases. Personally the work has been immensely rewarding, and professionally it has saved me from parochialism.

Hence I come here today as missionary, and I urge the charge of stewardship.

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My purpose is to convince you that perhaps disdain for purely practical writing may arise from lack of knowledge, that perhaps uncertainties about what technical writing really is and how it might be taught may be resolved, that perhaps fears of attempting it need modification, and, especially, that career-oriented writing is every whit as complex, sophisticated, challenging, and rewarding to both student and teacher as are imaginative writing, purely subjective personal writing, or literary exposition or criticism. What's more, career-oriented writing is more highly prized by the society which supports us -- in fact, so highly prized that if we are to survive the increasing attacks upon our integrity and credibility we must concern ourselves, first and foremost, beyond all our other legitimate concerns, with the world's first expectation of us: producing in our students guine competence in the sort of spoken and written language required in the world's work.

Suppose I begin my missionary task by trying to give the larger view of what constitutes the writing that does the world's work. Since too frequently the uninformed think of business and technical writing as cranked-out routine within a few rigid formats, probably the most fruitful approach is to look first at the many purposes of such writing. My experience -- within fourteen industries, sixty-odd major corporations, three scientific research and development centers, all three branches of the armed services, and Washington headquarters of three major departments of government -- indicates that the following are the most frequent purposes of writing in the world of work: (1) to present factual information clearly and concisely; (2) to describe items, equipment, systems, processes, procedures; (3) to explain ideas, concepts, principles, laws; (4) to analyze data, problems, situations, relationships; (5) to interpret or evaluate; (6) to make a sound,

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factual, logical case for a viewpoint; (7) to adapt any of the above (or below) to different audiences and circumstances; (8) to plan and write for oral presentation; (9) to write for the signature of others.

These many purposes of business and technical writing are served in varying combinations in the following forms and formats: letters, short memoranda, longer memoranda, short reports, long formal reports, information sheets, prospectuses, abstracts, digests, summaries, analyses, studies, profiles, manuals, bulletins, highlights, directives, guidelines, job descriptions, performance evaluations, briefs, position statements, public information releases, proposals, feasibility studies, progress reports, audit reports, fiscal reports, scripts for large-audience oral and media presentations, discussion guides for small-conference groups, etc.

This lengthy recital of purposes and forms of career-oriented writing, already too large for one course, should explain my earlier statement that the writing that does the world's work is every whit as complex, difficult, varied, and challenging to both teacher and student as are imaginative writing or literary criticism. Perhaps the point becomes even more self-evident when we look at the following problems and skills involved in such writing. They are: absolute clarity at first, rapid reading; shrewd consideration of audience and situation; sensitive awareness of how, where, and by whom the writing will be used; shrewd appraisal of the patterns of information flow within the receiving organizations; knowledge of and skill with many rhetorical strategies; shrewdness in choosing among these strategies; command of many organizational patterns; deciding upon, and achieving, the most effective tone for audience and purpose; pace and density; level of vocabulary; semantic considerations; sensitivity to audience receptivity

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factors; many ways to make organization evident to readers; the nature of evidence and proof; logic; appropriate format for purpose, company internal organization, information flow, communication channels, nature of distribution list; planning to present data graphically rather than verbally; selecting the most effective sort of graphic to support text; possible adaptation to or use for data processing, programming, information storage, or information retrieval; substantiation of generalities; unifying paragraphs and groups of paragraphs; making key sentences immediately recognizable as such; making the larger interrelationships and continuity immediately evident to a rapid reader; effective structure for key sentences; clarity of sentences; conciseness of sentences; precision of wording; variety of sentence structures; grammatical decency; punctuation and mechanics; spelling; and proofreading.

Having heard these lengthy lists of the purposes, forms, planning problems, writing skills, and associated knowledge necessary for effective technical or business writing, you should be willing to accept at least one point of this paper: namely, that writing and/or teaching this writing that does the world's work is surely as complex, difficult, and intellectually demanding as imaginative writing or writing about literature. Of course you can still react as the subject of Pope's telling thrust: "A woman convinced against her will,/ Remains of the same opinion still." Or you can adopt the attitude of the listener in a North Carolina teachers group. One lady who liked what I was saying jabbed an elbow into her neighbor, apparently an antagonist in her school, and said in vehement approbation, "Do you hear what he said?" To which the neighbor replied, with equal vehemence, "I hear, but I'm doing my best not to listen!"

But seriously speaking, if you are now willing to take career-oriented

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writing seriously, some changes of attitude may be necessary. Probably the fundamental step towards preparing to teach these courses is a basic change of attitude, a willingness to cut the umbilical tether back to the purely literary studies of most graduate English programs, and instead walk down main street with open minds, to hear the world's ideas of its language needs, not the ideas of the English departments (nor, perhaps, of the education schools or the psychologists). Many of you have already made that step or are inclining towards it, for in the two year colleges teachers must work closer to reality than we in the four year colleges and universities, where too often good and learned but narrowly experienced people seem to take perverse pride in forswearing the world. The origin of that attitude was medieval; and it is still medieval. Equally monkish is a widespread attitude among young, bright, idealistic English majors that serious concern for either frankly utilitarian writing or rhetoric and communicative effectiveness somehow sullies their precious purity and flaunted integrity. (Parenthetically, I'm tempted to call this immaculate conception of the teacher's task either professional virginity or professional frigidity.) To teach career-oriented writing with commitment one must choose among Wordsworth's "The world is too much with us...", Byron's "The world is a bundle of hay...", Browning's "This world means, and it means intensely...", and Edna St. Vincent Millay's "O world, I cannot hold thee close enough!" If Chaucer is so tellingly shrewd because he was first a man of business, if Shakespeare frankly wrote for bread, if Milton could lay aside long-cherished plans for a great epic to put his pen to the business of the commonwealth, if Swift and Johnson are so powerful because they so well knew man in the world of affairs, if Mathew Arnold urges us to see life steadily and see it whole, and especially when we urge involvement in the causes dear to us -- how can we then

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scorn the writing that does the world's work and often leads to its most momentous decisions? I like Jack Kennedy's tribute to Churchill: "He mobilized the English language and took it to war."

A second attitudinal change perhaps necessary to teach utilitarian writing is a willingness to reconsider the alleged values of writing about literature, of writing to find oneself, of reading imaginative works as a road to workaday expository prose, of writing for and to oneself in notebooks, of provocative reading or discussion in order to stimulate the student or to give him something to say, of freeing the student from blocks, hang-ups, or prescriptive or proscriptive teaching, and, especially, of the need "to express himself". Useful as some of these may be in other writing courses, they are not realistic for the career-oriented writing courses. For there the student has plenty to write about -- the content of his major subject or his work. Nor can he in the world wait for the mood and time and place and encouragement and appreciation and a smiling environment to pour forth his uniqueness; for in the world of work he writes on demand -- usually somebody else's demand, someone who can promote or fire, who is concerned only with results, and who in turn must meet deadlines imposed by others. Nor is the writer in business or science primarily concerned with expressing himself; his concern must be for effectively communicating to others what they have a need to know; and the virtues of most such writing are clarity, conciseness, precision, and logic -- not qualities evident in devotees of orgasmic rhetoric and ejaculatory style. In brief, and perhaps too simplistically, most of the approaches listed in the early part of this paragraph encourage the student to look inward and express as truly as possible what he finds there; but business and technical writing most often ask the writer to look outward, to concentrate upon what his

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reader needs or wants, and how the writer can most quickly and clearly communicate it to him in a form he can use for his purposes with his associates. Most business and technical writing is as totally functional as a wrench: if it doesn't do the required job, it's a failure.

Given today's climate of educational theory, a third matter of basic attitude may be more difficult to achieve: that is, honesty with ourselves, our students, their employers, and the public in facing the facts of students' achievements at the end of the course. For the competitive world of work for which our passing grade says our student is ready judges him by performance alone, and judges us by his performance. It's bad enough for us to have to admit failure when the student has tried and we have tried; but it's deception -- cruel deception -- to say to student, parents, and community that a student can perform adequately when we really know that he cannot do so. Here, I fear, is the crux: regardless of the difficulties under which we labor, regardless of administrative and community pressure to pass, regardless of the psychologists' and educationists' and sociologists' laudable insistence that we take the student where he is and teach accordingly -- regardless of all these, the world expects satisfactory performance in work situations, and a person's ability or inability to speak or write adequately in his work situations is inescapably evident. In simpler language, if students do not achieve, we should not say so by our grades, for the world will quickly find us out.

In this context, for those who teach disadvantaged students of any background, if we hope to help them towards upward mobility we should remember that almost any leadership or supervisory function means even more need for effective communication within increasingly complex situations. The best way I know to close the world's upward doors to a student is to say by transcript that he is competent

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in the mathematics and language required in a work situation when his achievement with us shows that he is not. For us to do so is to demolish the integrity of our teaching and the credibility of our profession.

If you are now convinced of the worthwhileness of teaching career-oriented writing courses, and if you have made or can make the attitudinal changes, there remain the obvious practicalities.

Your first logical question may be: how can I teach students to write about things of which I know very little? The first obvious answer is: read the texts, materials, manuals, and instruction sheets your students use in their career courses. Most of these materials are simple and lend themselves to fast reading for general information. Second, talk to the instructors of the courses, and find out from them what they are teaching and if necessary ask for further materials. But make clear to your students that content is their responsibility, and that your concern is clarity of presentation -- that is, exactness of words, exactness of phrases, clarity of sentences, obvious unity and obvious coherence of paragraphs, obvious continuity, obvious linkage of sections, obvious clarity of larger interrelationships, and introductions and endings which help the reader to anticipate what is coming and help him at the end to draw together the major points. For more complex writing your concerns will also extend to strategies, tone, pace and density. These are the central things you are doing in dealing with writing of almost any sort, and you will not find it difficult to transfer to technical matter, especially if you grade papers in conference and can ask the student questions about his content. As for technical vocabulary, it will be relatively limited: usually even the most technical writing is approximately ninety-five percent general language, which you know better than the student.

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Then there is a second question: how can I build a course outline to cover the actual needs of the students, especially when the course and students are too limited to deal with all the complexity discussed in the earlier description of the range and sophistication of business and technical writing? The best way is to pool your knowledge of the purposes of writing and the technical instructor's knowledge of what language situations his students will face in the classroom and on the job. Probably you should expand his notions somewhat by talking to employers, for frequently the vocationally oriented teacher has to stay so close to the basics that he is not always aware of what communication problems may face the student five years out, after he has risen to wider responsibilities. (Technological industry is littered with unpromotable people of excellent technical skills but too limited language and math to progress beyond basic work.) Then decide which of the purposes of writing earlier stated seem most necessary for the students, and ask the technical instructors to frame a series of assignments, going from simple to complex, which will make their students confront the problems involved in each of these purposes. As far as possible, students in different fields should be planned for and taught separately. Three obvious groupings are trades, business, and health.

A third practical question concerns the course organization and progressions within it. My experience inclines me to plunge the student into the most frequent and simplest communication purpose, simply furnishing information, and thereafter lead him through increasingly longer and more complex problems. Although his writing will be full of basic errors in the beginning, these will gradually decline as he writes more and more and as you occasionally stop to take a full class to work on what seems to be a common weakness. But you will kill all interest, and accomplish very little anyhow, if you start the course with a comprehensive review

of grammar and usage. The students and their technical instructor rightly want them to get straight into the communication problems they must face in their work situations. Individual remediation for clarity, conciseness, and organization will produce better results faster, as well as free you from the charge of giving just another high school course. Another approach common to composition courses, of starting with the sentence on the premise that the student who can write a good sentence will learn to write a good paper, is also of dubious value here. For these students need first to face the problems of purpose, audience, and organization: they are more important to their effective communication than are the smaller units of words and sentences.

The fourth practical question usually asked concerns the day-by-day time spent on each writing problem. Many experienced people have come to have each paper written by stages within a cumulative cycle of classes. The most common cycle is to first spend a class discussing the problem, suggesting many ways to approach it, and asking the students to come into the next class prepared to name their topic, anticipate its potential difficulties, and tell how they expect to organize their papers. This sort of talk usually triggers new or better ways of writing the paper than the student thought about alone. For the third class students are asked to bring in a tentative draft and asked to read aloud for class comment, or to have the draft duplicated for class comment, or to have the draft circulated for individual evaluation and suggestion by many other members of the class. For the fourth class they are asked to use whatever comments seem valid and to bring in the final copy, which is then evaluated by circulation among the entire class. For the fifth class the teacher cancels the formal class meeting and, adding her regular conference time to the class hour, schedules students for individual conferences

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and grading on the paper, with suggestion for individual work on weak points. Although most teachers will find difficulty finding time for the individual grading, experience convinces me that a ten-minute reading of a paper with the student beside me produces more improvement on the few central points I choose to discuss than a laborious thirty minutes of writing close comment on all the shortcomings of the entire paper. More important, the constructive attitude communicated to the student as you show him how to improve creates a rapport difficult to achieve otherwise. Furthermore, he has a chance to ask questions. If you evaluate and suggest rather than grade the papers of the first half of the course, you have a better chance of motivating improvement. Also important to your professionalism is the fact that recorded schedules of conference time enable your chairman to prove the point that teaching writing takes more time than teaching other subjects. Without that specific record of time spent on papers, his words to administrators often sound only like special pleading.

As for other practical considerations, such as textbooks if you know nothing about the field, I have an extensive list of the most widely used in both technical and business writing; write me if you want copies. To learn more, join either of two associations, the Society of Technical Writers and Publishers and the American Business Writing Association, both of which have meetings and publish journals. If you wish, write me for addresses. Both are seriously concerned about effective teaching in these fields, and both carry very useful articles. The advanced composition section of SAMLA often includes these courses in its programs, as do the more useful annual program and journal of the College Conference on Composition and Communication, which features an excellent session on technical writing.

But far more useful than any academic approach to the problems of writing for the world's work is personal experience with the worlds of either business, industry, government, or defense, for only that way will you really understand the purposes and uses of language in the world of work. A by-product of such experience will also probably be considerable change in your thinking about other writing and literature courses as well. You need not work as writer or editor or teacher in these worlds: for experience doing almost anything in a major complex enterprise will make you acutely aware of the communication problems faced by everyone in the workaday world where your students will spend their lives.

The other possibility is the obvious one of taking these courses, or the more common, all-purpose course in advanced expository writing at the graduate or undergraduate level which we offer every summer and which are widely offered elsewhere. Also, the seven or eight really experienced people in this area undertake consulting sessions for departments needing help in planning and staffing these courses.

In closing, let me offer a few cautions to chairmen or deans who must assign people to teach these courses. Although I have suggested that most English teachers could make the transition to this teaching, I would assign only experienced people of proved competence in other composition courses; for the average product of English graduate programs is prepared to teach only literature; and bright and willing as the person may be, the first two years of composition teaching will be largely a record of error. Almost no one will be able to confront simultaneously the double program of learning to teach composition -- for which he is unprepared -- and learning what is important to teach in fields foreign to him. To assign a beginner to these courses is unfair to the teacher, unjust to the technical departments, and almost certain to hurt the departmental reputation in the institution.

Once into these courses, the successful teacher should be used there frequently enough for the courses to profit from his accumulated experience; but the courses should not become the province of only a few specialists, for they too need the breadth of teaching many courses, and they may feel that they are being denied their fair share of college transfer and literature courses. Also, to give the courses the departmental status they deserve they should become a generally shared concern, a condition achieved only when most people teach them, and especially when most of the best people teach them in due course. But one caveat is in order: for these courses, keep out the impulsive, the overly sympathetic, the erratic, the undisciplined, and the professional enthusiasts. They simply won't do the job.

May I close with a both sobering and hopeful reminder. We English teachers have passed the days of wine and roses. We face a world of shrinking support -- or perhaps a more searching realism -- in which priorities, relevance, and accountability are the watchwords. Gone is the public's willingness to provide for the pursuit of excellence, for we have not produced excellence. Gone are the days of generous corporate support, for our average products enter the world of work lacking basic knowledge and skills, and too many of our brightest seem more interested in wrecking private enterprise than contributing to it. To too much of American society our products are disappointing. Perhaps a healthy first step towards restoring our credibility in the world is to pick up again, with commitment, the service concept we used to hold, the concept that an English department's first duty is to teach effective use of the language for the world's work. Achievement or non-achievement there is always visible, and our support from the world, I predict, will depend on our achievement there, and only there.

APPENDIX II

VITAE OF PROGRAM PARTICIPANTS

ROY A. McGALLIARD, Chairman
Department of English-Humanities
Western Piedmont Community College
Morganton, North Carolina 28655

Chairman of Program: "How Do You Teach Technical Writing?"

Title of Paper: "Teaching Writing Is A Relevant Act."

Education

Advanced Graduate Work, Appalachian State University, Boone, North Carolina
M.A. (Drama and English) University of Hawaii, Honolulu
B.A. (English) Lenoir-Rhyne College, Hickory, North Carolina

Work Experience

Technical Director, John F. Kennedy Theatre, University of Hawaii, Honolulu, 1963-64
Director of Drama, University of Guam, Agana, Guam, 1967-68
Assistant Dean, College of Letters, Arts and Sciences, University of Guam, Agana, Guam, 1968-69

Publications

"The CGP: An Effective Placement Tool," Published in SCETC Newsletter, Vol. V, No. 1, Spring 1972
"A Community College Chairman Looks at Graduate Curricula," Delivered at SAMLA, November 1972 and Published SCETC Newsletter, Vol. VI, No. 1, Spring 1973
"Realization of the Open Door Through the English Curricula," Delivered at 1972 N.C. Department of Community Colleges Conference, Fayetteville, N.C.
"Teaching Composition Is An Honorable Profession," Delivered at Appalachian Workshop on Teaching Freshman English, May 1974

Professional Memberships

NCTE (Member of Committee on Technical and Scientific Writing)
SAMLA (Secretary and Chairman-elect of the Freshman Composition Section)
SCETC (1975 Program Chairman)
N.C. DCC-CEI (Past Chairman, Member of Steering Committee)
CCCC
N.C.-VA CEA
AOPA

DAVID M. McLEAN MP 522
Presentations Department
Martin-Marietta Aerospace
Orlando, Florida 32802

Title of Paper: "What Industry Demands of the Technical Writer"

Mr. McLean is a member of the panel critiquing the Instructional Program presented in Part II.

Education

Miscellaneous Business Courses, Valencia Junior College, 1965-70
B.S. Journalism, University of Florida, 1960-1963
No Degree, Newberry College, Newberry, South Carolina 1958-1960

Work Experience

News and Sports Writer, Gainesville Daily Sun, 1960-1963
News and Sports Writer, Florida Alligator, 1960-1963
News Editor, WRUF-TV, Gainesville, 1963
Writer-Editor, Martin-Marietta Aerospace, Orlando, Florida

Special Experience

Coordinator for College Recruiting for the Presentations Department, Martin-Marietta Aerospace

RONALD H. CARTER
Instructor of English
Rappahannock Community College
Warsaw, Virginia 22572

Title of Paper: "How Do I Teach Technical Writing?"

Education

Advanced graduate work, John Hopkins University, Baltimore, Maryland, in progress
M.F.A. English and Film and TV, University of Iowa, Iowa City, 1968
B.A. English, USC-LA, magna cum laude, 1962
A.A. English, Fullerton Junior College, Fullerton, California, 1960

Work Experience

Assistant Professor, Howard Community College, Columbia, Maryland, 1971-1973
Instructor of English, Jefferson College, Hillsboro, Missouri, 1968-1971
Instructor, U.S. Naval Prep School, San Diego, California, 1968

Copyrights

J.R. Bloome Company/Advertising 1968-1969
Technical Writer, North American Aviation, Downey, California, 1962-1963

ANN NORMAN
Instructor of English
Cleveland State Community College
Cleveland, Tennessee 37311

Title of Paper: "How Do I Teach Technical Writing?"

Education

Advanced graduate work, Memphis State University, Memphis, Tennessee, 1971
M.S. English Education, University of Tennessee, Knoxville, Tennessee, 1967
B.S. Sociology, Middle Tennessee State University, Murfreesboro, Tennessee

Work Experience

Graduate Assistant, Office of Public Relations, University of Tennessee, 1970-1971
Teacher of English, Brainerd High School, Chattanooga, Tennessee, 1968-1970
Teacher of English, Northeast High School, Pasadena, Maryland, 1967-1968
Part-time Secretary, Clement, Bowen, and Grant, Attorneys-at-Law, Chatanooga, Tennessee, 1968-present

FRED H. MacINTOSH
Director of Advanced Composition
Department of English
University of North Carolina
Chapel Hill, North Carolina

Title of Paper: Dr. MacIntosh is a member of the panel critiquing the Instructional Program presented in Part II.

Education

Ph.D. English, Duke University, Durham, North Carolina
M.A. English, Duke University, Durham, North Carolina
A.B. English, University of South Carolina, Columbia, South Carolina

Work Experience

Director of Advanced Composition, University of North Carolina, Chapel Hill, North Carolina 1950-present
Professor of English, Clemson University, Clemson, South Carolina, 1942-1959
English Teacher, Dreker High School, Columbia, South Carolina, 1938-1942

Partial Publications List

"Management Writing," Delivered at CCCC, Miami, 1969
"How Good Is Our Product," Delivered at SAMLA, Charlotte, North Carolina, 1966
"The Growing Problems of Proposal Engineering," Seminar on the Engineering of Energy Systems in Multi-Plant Corporation," Princeton, 1965
"Writing Situations in Industry," Delivered at CCCC, Chicago, 1962
"The Writing Teacher A Technical Editor," American Business Writing Association, Cleveland, 1961
"Charles Gildon As Critic," English Literature Section of SAMLA, Daytona Beach, 1956
"Dryden's Religio Laici," English Literary Section of SAMLA, Atlanta, 1952
"Teaching Writing For The World's Work," Delivered at SCETC at Jacksonville, Florida, 1973

Technical Writing Experience

Taught Writing Courses for:
Carolina Bankers Association
U.S. Chamber of Commerce
Carolina Printers' Association
Federal Aviation Management Association
N.C. Tire Dealers' Management Institute
N.C. Hospital Administrators
Pepsi-Cola National Management Institute

Fred H. MacIntosh - continued

Wrote for:
U.S. Naval Ordinance
Westinghouse Corporation
U.S. Government, General Services Administration
Lockhead Aircraft Corporation
Deering Milliken Company
J. P. Stevens Company
Singer Manufacturing Company

Professional Memberships
Society of Technical Writers and Publishers
American Business Writing Association
College Conference on Composition and Communication
NCTE
SCETC
SAMLA
N.C.-VA CEA
and others

ROGER D. EASOM
Assistant Professor of English
State Technical Institute at Memphis
5983 Macon Cove
Memphis, Tennessee 38134

Title of Paper: Mr. Easom is a member of the panel critiquing the Instructional Programs presented in Part II.

Education

Candidate for Ed.D., English Education, Memphis State University, currently enrolled
M.A. English, Memphis State University, Memphis, Tennessee, 1970
B.A. English, University of Southern Mississippi, Hattiesburg, 1965
A.A. East Central Junior College, Decatur, Mississippi

Work Experience

English Teacher, Trezevant High School, Memphis, Tennessee, 1965-1968
Chairman English Department, Trezevant High School, Memphis, Tennessee, 1968-1969

Publications

Studies in Language and Literature, Harper and Row Series, 1974

Professional Memberships

NCTC
CCCC
SCETC
American Vocational Association
TCTE
Teachers of Technical Writing

DAVID E. FEAR
Department of English
Valencia Community College
Orlando, Florida 32802

Title of Paper: "How Do I Teach Technical Writing?"

Education
B.S. Southern Illinois University, 1964
M.S. Southern Illinois University, 1967
additional work Northern Illinois University

Major in English; minors in chemistry, mathematics, engineering drawing, and administration and supervision

Teaching Experience
K.D. Waldo Jr. High School, 1964-66
Newark Community High School, 1966-67
Sauk Valley College, 1967-70
Valencia Community College, 1970-present

Publications
Technical Writing, Random House, 1973
Articles in Teaching English in the Two-Year College, Freshman English News, and The Technical Writing Teacher, 1974

Professional Memberships
SCETC
CCCC
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Teachers of Technical Writing

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Education

A. B. English, 1970 East Carolina University
M. A. English, 1972 East Carolina University
Presently pursuing doctorate in Community College Education (minor in English) at N. C. State University

Work Experience

Part-time journalist, The Daily Reflector, Greenville, NC 1964-1969
Teaching Assistant, East Carolina University 1969-1971
English Instructor, Martin Technical Institute, Williamston, NC 1971-1973
Assistant Professor of English, East Carolina University 1973-present

Publications

"Making Composition Relevant at Martin Tech," The Open Door (Summer, 1972)
"Raising the Literacy Level through Improved Punctuation and Spelling." Paper presented at ECU Conference on "Language Arts In the Secondary Schools," November, 1972
"Teaching Composition to the Technical School/Junior College - Bound." Paper presented at ECU Conference on "Language Arts In the Secondary Schools," November, 1973
"Trends in the Preparation of Two-Year College English Teachers." Paper presented at the NC Department of Community Colleges Instructors Conference, May, 1974

Co-editor, Teaching English in the Two-Year College

Professional Memberships

Southeastern Conference on English in the Two-Year College
Community College Association for Instruction and Technology
National Council of Teachers of English
Conference on College Composition and Communication